The Milroy Lectures

ON

THE EARTH IN RELATION TO THE PRESERVATION AND DESTRUCTION OF CONTAGIA.

Delivered at the Royal College of Physicians of London

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LECTURE I.[1]

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EARTH.

MR. PRESIDENT AND GENTLEMEN,—That which we commonly speak of as "earth" is largely composed of excreta and the dead remains of animals and vegetables which, as the result of fresh biological processes, are either returned to the bodies of living vegetable organisms or, after becoming mineralised and soluble, are washed downwards by the rain and ultimately find an exit in the sea. It is obvious that not only does "earth" vary in composition with the varying conditions of subsoil, climate, flora and fauna, but that "earth" must undergo seasonal variations necessitated by the vigorous upgrowth in the spring or the decay of the fall—the heat and drought of summer or the flood and frost of winter. The interstices between the particles of "earth" are filled at one time with air, at another time with water, and the line of demarcation between earth and air on the one hand and earth and water on the other is often not very definite. Again, the dust which is suspended in the air and which settles on everything is liable to contain infective particles, harmless to breathe but dangerous if they fall upon a wound. It is obvious that such particles may be regarded as belonging to the earth or the air. Some of them doubtless emanate from the earth, having been raised as dust; but we must admit that there may be organisms which grow in the air, live in the air, and die in the air without ever touching earth or water and which elude all attempts at identification or artificial cultivation. While there are organisms which may live indifferently in air or water others are probably more exclusive in their obligatory conditions. The mutual interaction of earth, air, and water must never be lost sight of. It is the life in the earth, both vegetable and animal, which helps by its influence on vegetation to maintain the quality of the atmosphere. Again, it is the earth which gives the quality to spring and river water. Pure water is a body of definite chemical composition and pure air is a tolerably definite mixture of gases, and it is not difficult to approximately measure the degree of pollution of either. The chemical composition of earth, on the other hand, is complex and constantly changing and it is not possible for the chemist to fix any standard of quality. The practical agriculturist by the aid of touch, smell, and vision will say at once whether any given sample of earth is foul or pure, sour or sweet, rich or poor, fertile or sterile, and we must perforce content ourselves with the terms used by the practical man. The word "earth" in the ensuing lectures will usually be regarded as meaning humus in a healthy condition.

PATHOGENIC SAPROPHYTES.

There are certain pathogenic organisms which are constantly found in the earth and which appear to be ubiquitous. They adhere to our skins and clothing, get under the nails, and lodge in the hair. They produce various diseases of wounds and wounded persons and we now recognise that in the absence of those precautions which we call "antiseptic" it is never safe to inflict even the smallest wound. The modern surgeon not only renders his hands and instruments aseptic but he operates in spotless garments and endeavours to have an operating-room as clean and free from dust as possible. The organisms which produce the various wound infections are saprophytes which flourish external to the body. They are ubiquitous and (probably) necessary and so long as we have a whole skin and uninjured mucous membrane they do us no harm. As all organic matter is constantly circulating, passing through death to other forms of life and necessarily undergoing humification as it does so, it follows that the agents of these changes, the microbes which are to this end hatched in the soil, vary with the circumstances. Houston[2] gives the estimated number of microbes per gramme found in 21 samples of soil. These vary from 8326 in a virgin sand and 475,282 in a virgin peat to 115,014,492 in the soil from the trench of a sewage farm. Broadly speaking, the microbes bear a proportion to the amount of dung. Warington estimated that a gramme of dung from a cow fed on hay contained 165,000,000. They all, presumably, have their optimum conditions—chemical and physical qualities of the nutritive medium, access of air or other gases, lightness or darkness and temperature—and when the optimum conditions concur growth and multiplication go forward at a pace which we can hardly appreciate. The fact that for the growth of some the access of air is necessary while others obtain their oxygen from the medium in which they grow and others again are able to take in oxygen from either source has formed the basis of a classification which has assisted our understanding. Saprophytes, including those which produce wound infection, are presumably of service in bringing about the decomposition of complex organic bodies. Whether we are able to check the growth and multiplication of these facultative parasites outside the body is doubtful and whether or no we should be gainers or losers by so doing is still more doubtful. Bacteriologists have experienced no little difficulty in discovering the exact conditions which are necessary for the growth and development of many of the micro-organisms which have been studied. Some are more exacting than others and those which are best able to accommodate themselves to varying circumstances naturally obtain the mastery when several are attempting to grow simultaneously in the same medium. Some of the larger saprophytes, such, for instance, as the common mushroom, require no little skill for their artificial production. Their cultivation requires far more attention to exact details than is necessary with ordinary green-leaved garden plants. We know that for a few weeks in the autumn they may appear in great numbers in dry pastures where horses have been fed, provided the conditions of the air as to temperature, light, and moisture be favourable, and we also know that directly the necessary conditions fail the mushroom harvest is at an end. We also know how strange is the predilection of certain fungi for the dung of particular animals and I would allude to a list furnished to me by Mr. George Murray, F.R.S., which shows that the optimum conditions for the growth and development of these short-lived and delicate organisms must be marvellously subtle and probably quite beyond the ken of the chemist.

I will now proceed to deal seriatim with some of the contagia which are best understood and will begin with

TETANUS.

Among the ubiquitous organisms which are habitually found in earth is the bacillus of tetanus. It is said to be present in almost all rich garden soils and that the presence of horse-dung favours its occurrence. It is strictly anaerobic and has been artificially cultivated by Kitasato in an atmosphere of hydrogen. It forms spores and grows best at a blood heat. Marchesi has found it at a depth of two metres but no lower. The pure cultivation of the bacillus which has a disagreeable aromatic odour is often not very virulent. It is fatal to animals as well as man and among animals the horse appears to be most liable to be attacked. Infection always takes place by inoculation through the wounded skin or mucous membrane—never, it is believed, through the healthy alimentary or respiratory tracts. Cases of "idiopathic" tetanus are reported, but it has fallen to the lot of few of us to see a case and professional opinion seems to lean to the idea that in such cases the inoculating wound has been overlooked. The toxin which the bacillus brews locally in the wound is toxic to the central nervous system and the antitoxin to be effectual must, it is said, be injected subdurally into the central nervous system. The exhaustion of the nervous system seems to increase its vulnerability which is, perhaps,

[1] Lectures II. and III. will be delivered on Feb. 28th and March 2nd, 1899, respectively.

[2] Local Government Board Report, 1897-98.

the reason why tetanus has been relatively common in the domain of military surgery. There seems to be no doubt as to the ubiquity of the tetanus germ. Every child who falls on the ground and gets an abrasion of the skin, all tillers of the soil who get accidental wounds in the course of duty, and every horse which "breaks its knees" by falling in the London streets, runs, potentially, a risk of inoculation with tetanus. In the face of the ubiquity of the cause the rarity of the disease is remarkable. I have made inquiry of many practitioners in the Thames valley where market gardening is the chief industry and where countless tons of London horsedung are spread upon the land and learn from them that tetanus is in their experience the rarest of diseases. Seeing that the bacillus is so strictly anaerobic one is justified in supposing that the tillage of the soil which brings it in contact with air and sunshine must be unfavourable for its growth and virulence. The bacilli must die out under such conditions and the inoculation of the spores alone is said by Vailliard, Rouget, and Vincent to be incapable of setting up tetanus. If the bacillus or the spore be carried in dust, or if they be washed into the water and drunk we have no evidence that any harm results therefrom. In common with some other microbial diseases tetanus is more virulent in the tropics than in temperate climates. Friedberger and Frohner state that it is so common among horses in St. Domingo, especially after the operation of castration, that geldings are worth twice as much as stallions.

The statement made by Ledantec and H. M. Stanley that the natives of the New Hebrides and Central Africa are in the habit of poisoning their arrows by smearing them with mud (obtained in the New Hebrides from a mangrove swamp) gives emphasis to the importance of a tropical temperature and the absence of tillage as factors which make for increase of virulence of the tetanus bacillus and other organisms found in earth. Pus from the wound of an animal suffering from tetanus is capable of conveying the disease and perhaps it is due to this fact that certain stables and pastures have at times acquired an evil reputation in respect of tetanus. Captain Hayes, F.R.C.V.S., is of opinion that wounds in the hoof as the result of careless shoeing are a great cause of what may look like idiopathic tetanus in horses. In an article by Mr. Sidney Villar in the *Journal of Comparative Pathology and Therapeutics* for December, 1897, an observation by Mr. Joseph Woodger is quoted to the effect that tetanus is particularly common among horses used in dust-carts and Mr. Villar continues: "In my own practice in Middlesex there are two farms where the disease is specially prevalent. One of these at Alfreton is occupied by a farmer who habitually spreads on his fields large quantities of London refuse; at the second farm, five miles away, the bailiff brought two large loads of the sweepings of London roads in 1893 and dressed his home meadows with it. On these meadows his colts and young stock were pastured and for two and a half years tetanus was endemic on his farm; during this period six colts became affected and I believe only one entirely escaped the disease."

This experience of Mr. Villar seems to point to the danger of placing upon grazing land material which is probably mixed with broken glass or crockery. On clay lands such as are common in the north of London manurial matters placed on a pasture would be long in getting incorporated with the soil, and to allow horses to browse amongst the crude impurities of a great city cannot be without danger to the horses. Municipal authorities who wish to find a ready market for street refuse must clearly take care that it is not mixed with dangerous materials of no manurial value likely to wound the feet of animals. In connexion with Marchesi's observation that the tetanus organism has not been found at a greater depth than two metres I would allude to a fact to which I shall return later that this approaches the maximum depth to which the earthworm burrows. It is obvious that if a spore were carried downwards by a worm it would there meet with anaerobic conditions favourable for its preservation. A review of the main facts connected with tetanus cannot but rouse in us some surprise that in face of the ubiquity of the cause the disease in man should be so rare. This is probably in part due to the fact that we wear boots.

ANTHRAX.

Anthrax is a disease which undoubtedly is connected with the soil. The bacillus was discovered by Pollender in 1849, a discovery which is just 50 years old and which marks the dawn of pathological bacteriology. The identification of the bacillus in the laboratory and the diagnosis of the disease in animals from quarter-evil and septicæmia is not without difficulty. These difficulties are now understood but they are sufficient to throw a shade of doubt over some of the earlier observations. It may be well in the first place to give some of the facts collected by Pasteur without comment.

M. Chamberland, the able assistant of M. Pasteur, in his work[3] gives a *résumé* of what one may call the modern history of charbon. In 1842 a Government report showed that in France the disease raged among the flocks of half-bred merino sheep belonging to farmers in La Beauce. It especially attacked lambs and the losses in this district of La Beauce amounted to as much as 20 per cent. (out of a total of some 1,300,000 sheep) "et souvent dans les localités dont le sol est sec et calcaire la mortalité va jusqu'au quart, au tiers et dépasse parfois la moitié du troupeau." In the department of Seine-et-Marne and in the districts of Provins, Fontainebleau, and Meaux are certain farms known as *fermes à charbon*—"les meilleurs cultivateurs ne les louent qu'en tremblant." Also in Le Cantal charbon is known as "mal de montagnes" and certain hills are known as "montagnes maudites" because of their evil reputation in relation to charbon. The animals stricken with charbon show for a few days some excitability and passing dyspnœa and they become distended after feeding. Next the urine becomes bloody and it is a sign of bad omen to see fleeces spotted with blood. The dung also is noticed to be soft and slimy, of a whitish colour stained with blood. They die at last somewhat suddenly and in doing so usually void some blood-stained dung and urine and expel bloody froth from the nostrils. Post mortem decomposition is rapid and the animal swells up and blood is expelled from the nostrils. Hæmorrhages are found in the skin and cellular tissue, as also in the viscera which are engorged with blood.

The discovery of bacilli anthracis in the blood clinches the diagnosis. It was in 1850 that Rayer and Davaine described the bacilli and in 1877 Pasteur communicated to the Academy of Sciences the important fact of sporulation observed in these bacilli by Koch and himself, and further pointed out that the bacillus anthracis was essentially aerobic and was quickly destroyed in the blood of the dead animal after the onset of putrefaction. It is important to take notice of the extent to which the ground is soiled by the dung, discharges, urine, and bloody wool of an animal ill with anthrax.

In August, 1878, M. Pasteur fed sheep on lucerne previously watered with a pure cultivation of bacillus anthracis. He says that "in spite of the immense number of spores taken in with the food many of the sheep escaped death. ..... The communication of the disease in this way is still more difficult in the case of guinea-pigs." "Nous n'en avons pas obtenu d'exemple dans d'assez nombreuses expériences. Les spores, dans ce cas, se retrouvent dans les excréments. On les retrouve également intactes dans les excréments des moutons." The mortality is much increased when the infected food is mixed with prickly material such as the leaves of thistles and the chopped beards or husks of barley, and the post-mortem examination of sheep rendered "charbonneuses" by fodder of this kind gave reason to suspect that they were in fact really "inoculated" by definite injury by the prickly food to the back of the throat. Of 19 sheep fed on lucerne polluted with spores three died after four, seven, and nine days; of 11 sheep fed on polluted lucerne and thistles three died after three, four, and six days.

It is recognised by professional "knackers" that they run little risk of contracting "charbon" by manipulating dead animals far advanced in putrefaction and both Pasteur and Koch have shown that putrefaction soon destroys the bacilli in the blood and tissues of an animal and that the bacillus anthracis being aerobic sporulation does not take place inside the putrefying body, but is very liable to occur in the blood which escapes from it whether the blood flow upon the earth or upon a dung-heap.

In August, 1878, Pasteur made a necropsy on the body of a sheep and then buried the carcass in M. Maunoury's garden. 10 months and 14 months afterwards Pasteur found spores of anthrax in the earth of this animal's grave and established the fact by the inoculation of guinea-pigs. The spores were found in the surface soil over the grave, although since the burial the ground had not been moved. Similarly spores were found in the soil over the grave of a cow buried two years previously and at a depth of two metres. These spores were found over the graves of dead animals after all the operations of cultivation and harvest. Earth taken at a distance from these graves did not give charbon.

In announcing these facts to the Academy of Sciences in July, 1880, Pasteur says: "I shall not be surprised if doubts arise in the minds of the Academy as to the correctness of these facts. It will be asked, 'Does the earth, which is so potent as a filter, allow these microscopic spores to rise to the surface?' These doubts seem to be supported by facts already published by M. Joubert and myself. We have announced that water from even superficial springs is sterile. ..... These, in spite of conditions above which make for pollution, keep perfectly pure, which shows that a certain thickness of earth arrests all solid particles." Pasteur attributes the uprising of spores to the action of earthworms and he claims to have actually recovered spores from the bodies of earthworms living in soil polluted with anthrax.

"May not 'earthworms,'" asks Pasteur, "bring other noxious germs to the surface? They are always filled with a mixture and the spores of charbon are in them mingled with germs of putrefaction and septicæmia." Pasteur at this time regarded the earthworm as the great cause of the dissemination of anthrax. In a footnote Pasteur calls attention to the fact that in Le Cantal there are pastures which from time immemorial have escaped (*sont épargnés*) and others in which from time to time the cattle were

[3] Le Charbon, Paris, 1883.

decimated and which are known as "*montagnes dangereuses*" which are abandoned without deriving the least profit from them, "at least during several years," says M. Baillet.[4] "This last circumstance deserves great attention. It proves that the cause, whatever it may be, which produces charbon in a locality disappears with time." In Beauce Pasteur saw certain fields in which the folding of sheep had been interdicted for several years—i.e., since the last death thereupon from charbon. "Now we placed flocks of sheep on five of these fields and the mortality was *nil* except in one flock where it amounted to 1 per cent."

M. Colin of Alfort, a professor at the Veterinary School, not being satisfied with some of Pasteur's experiments, a further report was made on May 17th, 1881, by a commission composed of M. Bouley, M. Darvaine, M. Alphonse Guerin, and M. Villemin. Earth from a 12-year grave, a three-year grave, and from virgin soil was kept at a temperature of 90° C. for 15 minutes and the fine sediment was injected into guinea-pigs. Of five guinea-pigs inoculated with 12-year earth on March 19th four died on March 21st and 22nd from septicæmia and one died on March 23rd from charbon. Of five guinea-pigs inoculated with three-year earth on March 19th, four died from March 21st to 23rd from septicæmia and one died on March 23rd from charbon. Of five guinea-pigs inoculated with virgin soil on March 19th none died. One had a small abscess at the seat of puncture. Of six guinea-pigs inoculated with 12-year and three-year earth on March 30th five died from septicæmia on April 3rd and one died from charbon (12-year earth) on April 3rd. Of three guinea-pigs inoculated with excreta taken from the bodies of living earth-worms two died from septicæmia and one from charbon on March 30th. Of the 19 animals killed by the above experiments 15 died from septicæmia and four from charbon.

Since 1879 M. Pasteur had asserted that most soils when inoculated were capable of causing death from septicæmia quite apart from any contamination by the death of anthrax animals. Of three guinea-pigs inoculated on March 28th with worm castings taken from above the graves of some of the victims of the commune situated on waste land one died from septicæmia on April 1st and two were unharmed.

Pasteur had clearly demonstrated that the anthrax bacillus is essentially aerobic, that it is soon destroyed by putrefaction, and that for sporulation free exposure to air and a temperature above 15° C. and under 45° C. are necessary. These facts seem out of harmony with the view that earthworms bring spores from a deeply buried carcass to the surface.

The following case is quoted by Pasteur.[5] On August 21st, 1796, a mare fell dead from anthrax on a causeway (digue) at Houé (Eure-et-Loir). The animal was skinned and the carcass was dragged by two horses all along this causeway (along which farm animals passed to and fro), with the result that the ground was soiled by the blood and other débris of the dead animal. A large number of the sheep and cows which used this soiled path died. These animals were skinned and buried with the result that the foci of contamination spread and ultimately 500 or 600 sheep succumbed to anthrax. The skinning and transportation of an animal dead from anthrax must necessarily be a most dangerous process.

All are agreed that anthrax is a disease liable to haunt localities. Thus, in the report of the Board of Agriculture for 1895 I find the following:—

An undoubted fact in connexion with anthrax is its tendency to recur on certain farms. An examination of the agricultural returns received shows that during 1895 the disease reappeared on 23 farms or other premises in England and six in Scotland where it had been reported in the previous year. From this cause farms come to be regarded as dangerous and their value is very greatly depreciated. In a report issued by the German Government[6] allusion is made to the farm of Parkisch where anthrax was rife. "Numerous outbreaks of the disease were especially remarked when certain portions of the farm were used as pasture and when fodder from these portions was used in the stalls. The former tenant of the farm is said to have buried on different parts of the farm carcasses of animals which had died of anthrax and also to have put the carcasses into the dung-heap to use them as manure."

Again, "Dlouie is a large estate in Krolcen, district Posen, and is known as a hot-bed of anthrax. ..... It is stated that carcasses of animals which have died from anthrax have been buried with great carelessness on different parts of the fields, especially behind the sheep sheds and in a small wood situated some 100 paces from the farm, which also serves for pasturage, and even in the dung-heaps, which together with the straw from under the diseased animals were used for manure."

It is alleged by Friedberger and Frohner that the spores may vegetate in the soil and surface water quite independently of the animal body. The disease is said to occur among horses, cattle, and buffaloes in Eastern Bengal, Manipur, and Burma without the agency of infection and to be in that part of the world a truly miasmatic disease. As spore formation requires something like a blood heat, it is only what might be expected to find the disease becoming endemic among cattle and horses in tropical countries. Where infected animals drop dung and other discharges on the soil it becomes impossible to say whether the infective spore originates in the soil or in the animal. The distinction which separates soil from dung is somewhat subtle. These authors assert that "there exists a well-marked connexion between the disease and the amount of moisture in the soil. It appears most frequently in lowlands and plains exposed to inundations and great heat." Copeman also asserts that the disease is prevalent on damp soils containing much humus, as, for instance, upon peat bogs and near the borders of lakes and rivers which have overflowed. On the other hand, we have Pasteur speaking of *montagnes maudites* in connexion with anthrax and asserting that the mortality is great in soils which are *secs et calcaires*.

Many of the outbreaks of anthrax in this country have been in the neighbourhood of Bradford and have been traced to the use of infected wool-refuse as manure. A map published by the Board of Agriculture shows that the outbreaks of anthrax are most frequent in those counties of Great Britain where dry foreign wools, hairs, hides, and skins are manufactured into goods. In 1892 there were 42 outbreaks of anthrax in the West Riding of Yorkshire, as against two in the North Riding and one in the East Riding. Wool when used as a manure must take a long time in becoming disintegrated and humified. In this respect it is very different from dung and if wool be infected with anthrax spores it must be a very dangerous manure for a pasture. The chief sources of danger are said by Dr. Bell of Bradford to be the dry wools of goats, alpacas, and llamas which are imported very dry from hot countries. It is the anthrax spore which is the danger and if, as is the case, a high temperature and free admission of air be necessary for sporulations an excess of water would be unfavourable for that process. There seems a concurrence of opinion that the bacillus anthracis is killed by putrefaction and soon disappears in the unopened and unskinned body. Schmidt-Mühlheim inoculated guinea-pigs with anthrax and as soon as they were dead he skinned them and placed the limbs in an incubator at 39° C. The surface of the flesh was soon covered with a whitish film which was found to consist exclusively of anthrax bacilli, in many of which commencing spore formation was apparent. There can be little doubt that the soil becomes infected by the discharges from the living animal and the skinning and other manipulations of the dead one. The advice which is usually given in this country to bury anthrax carcasses deeply and unopened and unskinned is doubtless sound, although it is doubtful if the depth of the grave adds materially to the anaerobism of the surroundings. It is very doubtful if in an unopened body spore formation be possible after a short period of burial. It is clear that the animal should be buried at the spot where it dies and that the spot should be enclosed and planted with a few saplings of some indigenous tree. The value of "quicklime" is doubtful. Whether it be advisable to delay burial until quicklime can be obtained is still more doubtful.

All Pasteur's experiments in relation to graves appear to me to be vitiated by the fact that they took place in an anthrax district and it is very difficult to say whether the spores were derived from the buried animal or from the dung of infected ones which had been used as manure, or from the blood-stained wool which, we are told, is of "bad omen" in a flock. It is a noteworthy fact that of the 19 guinea-pigs inoculated by the Alfort Commission four only died from anthrax and 15 from septicæmia, and that the earth from the three-year-old grave and from the 12-year-old grave conveyed anthrax in the same proportion—i.e., one in four inoculations. There seems no doubt that spores may be found in earthworms or their castings and there is equally no doubt that if the worms have brought the spores from the depths of the earth such spores must have originally been formed on the surface. It is, of course, quite impossible to say whether a worm swallowed the spore on the surface or below it. It is certain that recently dead bodies have no attractions for worms. Such carrion usually forms the food of maggots hatched from the eggs of diptera deposited before burial and of beetles which live in the earth and are soon attracted to it.

There are some discrepancies amongst observers as to the

[4] Mémoires du Ministère de l'Agriculture, 1870.
[5] Annales de l'Agriculture, 1ère Série, tome xxx., p. 332.
[6] Report of the British Board of Agriculture, 1894.

infectivity of food grown on anthrax ground. On the one hand, Pasteur was unable to do much harm to sheep fed on lucerne sprinkled with spores and, on the other hand, we have a story quoted by Pasteur of an old woman whose goat and cow died from anthrax when fed with clover stolen from over a grave two years after the burial of an anthrax animal. It is, of course, impossible to get away from the *post hoc* fallacy in these cases, especially in a country where animal hygiene was utterly neglected and where anthrax was, or diseases resembling it were, rife. In this country we have had no outbreaks of anthrax at all comparable to those which have proved such a scourge in France and other parts of the continent. The loss of sheep from anthrax in England is very slight and the explanation is probably to be found in the relative vulnerability and immunity of the flocks. Sheep in England are rarely housed but are allowed to breathe at all times the freshest of fresh air. Their pastures are changed before the ground gets foul and when food is short they are either killed at once or fed upon imported food. Such a condition of things would be likely to breed immunity to disease of all kinds; and it is noteworthy that tubercle is much less common among sheep than amongst animals which are housed. When flocks are kept partly for dairy purposes and when sheep are housed and breathe a foul air and lie upon filth mixed with earth it is no wonder that disease, especially such a disease as anthrax, is liable to be rife and to be difficult to eradicate.

Anthrax in the human subject is a rare disease. Man is never infected through the alimentary tract as appears to be the rule among animals. Dr. Bell of Bradford says that "no such case has been recorded in this country." Cutaneous anthrax (malignant pustule) is caused by direct inoculation. It occurs (1) in those who come into contact with infected animals alive or dead; (2) in those who handle offal, skins, hoofs, horns, hairs, wools or other derivatives from such diseased animals; and (3) in countries where the disease is common among animals women and children who do not come into direct connexion with infective material are not infrequently attacked with the disease through the medium of persons, animals, or insects.

Pulmonary anthrax or wool-sorter's disease was first noticed in the Bradford worsted district after the introduction of alpaca and mohair as textile materials in 1837. "This form of anthrax may attack any person exposed to the inhalation of anthrax spores in *dust* arising from the products of diseased animals." The fact appears to be undoubted that anthrax may be a dust disease and that the spores when perfectly dry may be inhaled into the lungs. And yet I have hitherto found no records of pulmonary anthrax from the inhalation of dust from highly manured ground which must, one would suppose, especially in the West Riding of Yorkshire, often contain anthrax spores. The lungs of the agricultural labourer and the market gardener appear to be immune to the infectivity of anthrax spores. It seems to be of very great importance to bear in mind: (1) that anthrax spores persist even in the finely pulverised soil of worm castings, which must be very easily dried and converted into dust; (2) that anthrax may undoubtedly infect man by the inhalation of dust; and (3) that pulmonary anthrax among agriculturists has not been recorded. In India it is believed by some that dust is a common cause of enteric fever among Europeans, a statement which is insusceptible of proof or of disproof. Does pulmonary anthrax occur among the rural population of the tropical countries where the disease is endemic amongst cattle? In this connexion we must bear in mind that anthrax bacilli may change their virulence without undergoing any morphological changes and in this form when inoculated may confer immunity on susceptible animals without apparently producing other effects. The virulence is diminished by cultivation at high (from 108° to 120° F.) or low (from 66° to 75°) temperatures, by cultivation under pressure of three or four atmospheres, by exposure to sunlight, or by admixture with other bacteria. The modified organisms thus produced are not pathogenetic but confer immunity on susceptible animals for nine or 12 months. Morphologically they are indistinguishable from the most active and virulent forms of the organism and they will generally regain their virulence when favourable conditions are restored although the degree of virulence varies in different species of animals. The persistence of the anthrax spore in the earth does not admit of a doubt but there is no evidence that man is ever infected directly from the earth. How far anthrax in animals is due to inoculation rather than to feeding requires further and very careful investigation.

DIARRHŒA.

Diarrhœa is a disease which in its epidemic form has been supposed to be engendered in the earth.

The third quarter of the year 1898[7] was characterised by a very large infantile mortality, mainly attributable to diarrhœa. The rainfall for the quarter was unprecedentedly small, the temperature was above the average, and the harvest was one of the best on record.

Of the 141,540 deaths registered 52,837 were those of infants under one year of age. The mortality of infants, measured by the proportion of deaths under one year of age to registered births, was 225 per 1000 which is the highest proportion in any quarter for which the figures are available and is 55 per 1000 above the average in the 10 preceding third quarters. In the 33 great towns as a whole infant mortality was equal to 275 per 1000 births, being higher than the proportion in England and Wales by 50 per 1000.

Excluding the towns infant mortality in the remainder of England and Wales was in the proportion of 184 to 1000 births. *Diarrhœa* caused 22,524 deaths, equal to an annual rate of 2·85 per 1000, or 1·21 above the average rate of mortality in the third quarters of the previous ten years.

The death-rate from this disease ranged from 0·7 in Rutlandshire, 0·58 in Hertfordshire, 0·66 in Shropshire, and 0·68 in Dorsetshire, to 3·63 in Leicestershire, 3·70 in Staffordshire, 3·94 in Lancashire, 4·23 in the East Riding of Yorkshire, and 4·40 in Warwickshire. Among the 33 great towns the diarrhœa rate averaged 3·85 per 1000, the highest rates being 5·85 in Hull, 5·94 in Sunderland, 6·30 in Sheffield, 6·38 in Wolverhampton, 6·41 in Preston, and 6·47 in Salford. In the 67 other large towns the rate averaged 3·27 per 1000. In the rest of England and Wales the diarrhœa death-rate was equal to 2·07 per 1000.

It will be observed that the mortality from diarrhœa was mainly urban. Among counties it is the rural counties which have least and the industrial counties which have most diarrhœa and if we turn to the mortality returns for those counties where diarrhœa was especially rife we shall find the mortality greatest in the urban districts. It is a point not without interest to note that the diarrhœa death-rate and the fever death-rate in this quarter bore no relation to each other and that, while the diarrhœal death-rate was 1·21 above the fever death-rate was 0·03 below the average for the corresponding quarter of the last 10 years. In the following table some figures are collected which show this very strikingly.

Table showing the Death-rates per 1000 from Fever and Diarrhœa during the Third Quarter of 1898.

—	Fever.	Diarrhœa.
England and Wales	0·16	2·85
London	0·11	3·19
Wolverhampton	0·18	6·38
Leicester	0·13	5·34
Manchester	0·09	5·38
Preston	0·28	6·41

Diarrhœa is a disease of hot weather. Ballard thought that when the four-feet temperature of the earth reaches 56° F. diarrhœa becomes common. Tomkins of Leicester (Leicester is a "diarrhœa town") shows that the disease becomes common when the one-foot thermometer stands at 60°. Snow of Buffalo, U.S.A., showed that in 1886–88 diarrhœa mortality was highest when the minimum atmospheric temperature attained its highest average range. The London statistics for 1887 and 1888 collected by Dawson Williams show a similar relationship between diarrhœa and a high average minimum range of temperature. Copeman considers it highly probable that the disease is due to "microphytic processes" going on in the upper layers of the soil. This would afford an explanation of the fact that summer diarrhœa is especially a disease of cities having a polluted soil. Ballard's conclusions (as given by Copeman) were: "That the essential cause of diarrhœa resides ordinarily in the superficial layers of the earth where it is intimately associated with the life processes of some micro-organism not yet detected, captured, or isolated. That the vital manifestations of such organism are dependent, among other things, perhaps principally upon conditions of season and on the presence of dead organic matter which is its pabulum. That on occasion such micro-organism, capable of getting abroad from its primary habitat, the earth, and having become air-borne, obtains opportunity for fastening on non-living organic material and of using such organic material both as nidus and pabulum in undergoing various phases of its life-history. That in food, inside of as well as outside of the human body such micro-organism finds, especially at certain seasons, nidus and pabulum convenient for its development, multiplication, or evolution. That from food, as also from the contained organic matter of particular soils, such micro-organisms can

[7] Quarterly Return of the Registrar-General.

manufacture by the chemical changes wrought therein through certain of their life-processes a substance which is a virulent chemical poison (probably ptomaine). That this chemical substance is in the human body the material cause of epidemic diarrhœa."

It is most important to remember that these speculative notions of Ballard's are not facts.

The bacillus enteritidis sporogenes is believed by Klein to be the cause of infantile diarrhœa.[8] It is an anaerobic bacillus which forms spores and may be easily cultivated in milk. It is fatal to rodents when injected hypodermically and produces a foul-smelling bloody œdema of the cellular tissue and adjacent muscle tissue. The spores were found in four out of 10 cases of infantile diarrhœa examined and in six out of eight cases of cholera nostras. It was found in eight out of 10 samples of milk purchased in London milkshops between April and the end of June (when diarrhœa was not epidemic?) including samples of so-called "pure sterilised milk." It has been found in large quantities in sewage and in sewage effluents. It is found in horsedung and in all matters polluted with it. It has not been found in pigdung or cowdung or in the dung of a healthy human being.

In face of the wide distribution of the microbe it is evident that the vulnerability of the individual must be an important factor in determining an attack of diarrhœa. If we are to consider diarrhœa as a soil disease it is evident that it exists only in the upper layers. It is more common among city streets than in agricultural districts. According to Klein the probable cause is largely to be found in horse dung which is pulverised and blown about generally. Temperature, as we all know, is most potent as a cause of infantile diarrhœa in cities. That it is a "soil" disease in any true sense is certainly not proven.

DYSENTERY.

Andrew Davidson[9] says:—"In keeping with the predilection of endemic dysentery for marshy localities accounts of its endemo-epidemic extensions in temperate climates generally point to the temporary establishment of paludal conditions." Thus in 1873 an outbreak arose from the cleaning out of the lateral canal of the Loire and the desiccation of the mud. A similar result followed at Leymen (Haut-Rhin) from the clearing out in August, 1850, of a vast slimy reservoir situated in the middle of the village. In tropical countries dysentery appears to be more independent of soil than in temperate climates, but an imperfectly-drained or marshy soil is everywhere favourable to its prevalence. The geological nature and the mineralogical constituents of the soil are secondary in importance to its physical conditions—its dryness, humidity, and aeration. These again are of less moment than its state of organic purity. That a soil charged with dysenteric or perhaps even with fæcal (simple fæcal) evacuations is capable of giving rise to the disease is amply proved. The epidemics which occurred in the Cumberland and Westmorland Asylum in 1864–65 and in 1868 were shown by Dr. Clouston to be due to the effluvia from a stiff clay field over which the sewage of the asylum was allowed to flow. The soil was quite unfit for irrigation purposes. Among the causes of the frightful dysentery mortality which made Secunderabad a byword none was more effective than the saturation of the soil of the site itself with organic impurities, the extreme pollution of the vicinity with fæcal matters, and the bad privy accommodation. The dysentery of war and famine shows little respect for climate or season; under the given conditions it appears in countries most free from the endemic disease and at all seasons of the year. The dysentery of war and famine is extremely fatal and it has a greater tendency than any other to become complicated with typhus, typhoid, and malarious fevers. In the Irish workhouses during the 10 years ending June, 1851, no fewer than 50,019 persons perished from dysentery and 20,507 from diarrhœa. The dysentery of war and famine frequently assumes a contagious character. The bacteriology is rather uncertain owing to the numbers and variety of the micro-organisms which are found.

Davidson concludes: 1. The healthy intestine is capable of much resistance to the infective agents of dysentery. 2. The healthy human being carries with him organisms capable under certain conditions of giving rise to inflammation of the intestinal tract, and besides organisms of suppuration, putrefaction, and sepsis are everywhere present which have the power of determining dysenteric inflammation of the bowels when its nutrition is impaired. 3. A simple catarrhal condition of the bowel is sufficient in itself to produce true dysentery. 4. When we observe a body of men seized with an infectious form of dysentery immediately after being subjected to hardship and depressing meteorological influences while another body in the vicinity having the same food- and water-supply but not subjected to the like fatigue and hardships escape, we are led to infer that the common exciters of inflammation rather than any specific agent must have given rise to the disease.

CHOLERA.

Ernest Hart says: "Within certain areas in India cholera is endemic, especially in the country of the lower Ganges. There the air, the water, and the soil are never cold, the ground is often damp, and when it is dry the tanks are foul, so that there is always a fit breeding-place for the contagion, &c." Koch's vibrio (Kanthack) grows in dilute peptone at from 30° to 35° C. It is commonly said to be destroyed by drying. It is a facultative anaerobe and highly saprophytic. Cultures retain their vitality on silk threads for 86 days and dried on glass for 120 days. "From flies fed on choleraic material the vibrios could be separated after 14 days." The inoculation test practised on the lower animals is inconclusive. According to Pettenkofer (quoted by Copeman) cholera occurs when the ground-water after having attained a higher level than usual commences again to fall.

MALTA FEVER.

Malta fever[10] is caused by the micrococcus melitensis discovered by Bruce in 1887. It is common to the shores of the Mediterranean and Red Seas. "It was early apparent that its presence in Malta and Gibraltar was connected with fæcal and organic matter from human sources. Sewers and sewage works where these have been undertaken, as in Valetta and Naples, appear to have little influence in diminishing the attacks. Indeed, the channels are so frequently pervious and allow the fæcal matter to soak into the pores of the soil that they virtually become elongated cesspools and increase rather than diminish the dissemination of the poison. Tomaselli notices the same fact in relation to the prevalence of the fever and the introduction of sewers into Catania. In his opinion the immense quantity of sewage and sewer air which is developed in these sewers and finds its way out of them is to be placed in the first rank of its causation and is an argument in favour of the aerial dissemination of the morbific agent. The micro-organism grows best in nutrient material the alkalinity of which is slightly less than human blood and at a temperature of from 37° C. to 39° C. It fulfils Koch's postulates at all points. It lives for a long time in the dry state."

PLAGUE.

Plague has been regarded as a soil disease, but recent evidence must materially modify this opinion.

The alleged facts which support this view are, according to J. F. Payne in his article on Plague in Allbutt's System of Medicine: (1) its limited geographical distribution; (2) because ground animals such as rats perish in large numbers—"they have buboes and their organs contain immense numbers of the plague bacilli; it cannot therefore be doubted that the virus exists underground before it affects human beings"; (3) its recurrence at the same spot while places near and in direct communication escape; (4) the escape of water populations such as Canton and in London in 1665; (5) the fact that the ground floor is affected more than the first floor—"Plague does not go upstairs" (?); and (6) "the beneficial effect of local sanitary measures."

It would appear from the above reasons that the endemic prevalence of plague is comparable to that of cholera or typhoid fever and is governed by somewhat similar laws, though in other respects it differs very much from those diseases. In the double infection of the soil and the organism it resembles anthrax. Along with the infection of the soil there appears to be a passage of the virus in some form into the air, so that it has always been believed that the disease may be acquired by inhalation like typhus fever. Scientific explanation of this method of receiving the virus is still wanting. Epidemics have often been preceded by drought; epizootics, famine, and abundance of flies have been noticed. Epidemics are usually checked by cold and heat. It is pre-eminently a filth disease invading by preference the crowded, ill-ventilated hovels of the miserable. "A soil contaminated with fæcal discharges and decaying animal matter of all kinds appears to be an essential condition for the vitality of the virus." Widely different opinions have been held as to its "contagiousness." "The infection is doubtless generally conveyed by persons either infected with the disease or in the state of incubation. Such persons convert the house they occupy into a focus of infection till possibly the virus passes into the soil and a severe epidemic may result." The rate of extension is variable but generally slow; plague has taken weeks or months to pass from one side of a city to another; it creeps along from point to point so as to be compared by some to a drop of oil on paper. Such gradual extension suggests the slow progress of a virus in the soil itself, and probably that is in some places the explanation, but obviously only transmission through short distances can be thus accounted for.

It is encouraging to observe how the habit of calmly observing and recording the phenomena of different epidemics together with carefully devised experiment has thrown light upon many of the obscure points connected with plague. We now know that plague is protean in its forms and that all forms are not conveyed from individual to individual with equal readiness. The unfortunate accident which occurred last year in Vienna ought to have, and doubtless has had, the effect of dispelling many of the superstitions in regard to plague. It has clearly demonstrated to the people at large (1) that the poison is something tangible which may be conveyed from one part of the world to another in a test-tube; (2) that the poison may infect the lower animals; (3) that the lower animals may infect man; (4) that the pulmonary form of the disease is terribly infectious and communicable through the air; and (5) that measures of disinfection and isolation are capable of cutting short an epidemic. Experiments carried out in districts where a disease is epidemic or endemic necessarily acquire a measure of uncertainty from that fact alone. The occurrence at Vienna, much as one may deplore it, was an object-lesson of the greatest value and converted what many regarded as mere theories into facts which all can read and understand. In the recent epidemics in the East the theory that plague grows "in the soil" has received no support whatever and that it spreadsin the soil like a drop of oil permeating paper appears to be unlikely. In India two facts have come to the front—viz., the danger in relation to plague of (*a*) rats and

[8] Twenty-seventh Local Government Report, 1897–98.
[9] Allbutt's System of Medicine, vol. ii., p. 408.
[10] Allbutt's System of Medicine, vol. ii., p. 463, by Laue Notter.

(*b*) abrasions on the skin. The rat lives in burrows in the soil and swarms in our sewers. He feeds largely at night and comes out of his hole in search of food and prey. It has long been recognised that the rat is susceptible of plague. In Bombay, according to Simpson, as many as 100 affected rats were counted in one small grain depôt in one day. Hindoo writings 800 years old warn the inhabitants to leave a district when they observe a mortality among rats. The infection of rats usually follows infection of a distant locality by men. Nowhere has this been more decidedly proved than during the late epidemic in India, where the infection of the rats has unfortunately followed the introduction of the virus by man, from a primary seat of infection situated at considerable distances from the secondary area of infection. Rats may convey infection from infected burrows on their feet or fur; they also become infected by eating each other. When dying they usually leave their holes and run about the rooms of a house and then die. Carelessness in dealing with or handling them, especially in the filthy surroundings and associated with the dirty habits of the inhabitants of these houses, along with the possible convection by vermin, must all necessarily be in favour of the infection being carried to man. The amount of such infection spread by rats cannot be gauged. The infection of the rat is no proof whatever of infection of the soil except by filth deposited on the surface. Lowson in his report to the Bombay Government in 1897 says: "That the disease is primarily a soil disease is certainly borne out neither by observation nor experiment. Takaki and I carried out bacteriological experiments in Hong-Kong by which we were able to prove that even in houses in which the earthen floors had been severely infected no cases of plague infection could be obtained and later experiments on the artificial infection of earth with a culture of the plague bacillus have shown that the mixture of earth and bacilli loses its infecting power, sometimes in a couple of days." Indeed, there has been no proof forthcoming so far that the plague bacillus has ever been found below the surface of the earth.

In Hong-Kong the soldiers who were attacked by plague were in the cleansing squads, and were well booted, but worked with trousers open at the bottom. In India the military parties who assisted in this work were ordered to wear putties to prevent plague-infected dust and animals from coming in contact with their legs, with the result that none of those engaged in this work became infected, and that, too, amongst probably eight or 10 times more soldiers than were doing the work in Hong Kong. To sum up, it may be said that the following are the most important items in the spread of plague: (1) filthy habits of the people, such as spitting over the floor and others mentioned above; (2) filthy houses; (3) overcrowding and consequent rapid increase of contagious disease when once imported; (4) presence of rats, insects, and other vermin; (5) the naked condition of the people going about, such people presenting almost unlimited opportunities for the entrance into their tissues of plague poison by inoculation and through abrasions; (6) pollution of soil and houses with the excretions of man and animals; and (7) filthy clothing and absence of bodily hygiene.

DIPHTHERIA.

Arthur Newsholme in his work on Epidemic Diphtheria (1898) while admitting that personal infection is the chief means by which diphtheria is spread, contends that:—

> The specific micro-organism of this disease has a double cycle of existence, as have the specific micro-organisms of enteric fever, erysipelas, scarlet fever, rheumatic fever, &c. One phase is passed in the soil, another in the human organism. One is saprophytic, the other parasitic.[11] It is not strange, therefore, that the epidemic prevalence of all the above diseases is favoured by deficient rainfall if this is sufficiently long continued. This deficient rainfall implies a low subsoil water and a subsoil above the level of this water which is relatively dry and warm, probably the optimum conditions of the saprophytic life of the above pathogenic micro-organisms. The causes of the transition of the diphtheria bacillus from the saprophytic to the parasitic phase of life may be surmised both as regards (*a*) season and (*b*) years of special epidemic prevalence. Diphtheria is most prevalent in the autumn and early winter months, when the optimum temperature and the optimum degree of humidity of the soil are rapidly disappearing or have departed. It is also most prevalent after the wet weather occurring in or immediately following exceptionally dry years. Both these conditions tend to raise the ground water and to drive out any pathogenic micro-organisms from the soil.
>
> Newsholme is of opinion that in order to account for the epidemic and even pandemic waves of diphtheria "the diphtheria bacillus under certain conditions becomes more actively virulent and infective—more remote from its saprophytic phase of life, and that thus persons who can resist the ingress of the feebler fall victims to the more powerful micro-organism." The latter is probably the correct hypothesis and the evidence already given clearly points to the conclusion that of the external cultural conditions leading to increased virulence of the diphtheria bacillus and greater readiness for assuming a parasitic life exceptional deficiency of rainfall and consequent exceptional deficiency of moisture in and exceptional warmth of the subsoil form an essential part.

[11] It is not contended that there is a regular alternation of saprophytic and parasitic generations; but that such alternations do occur.

The above is a very ingenious hypothesis, but it is essential to point out that the diphtheria bacillus has not been recovered from the soil and that the bacilli of rheumatic fever and scarlet fever have not yet been identified. Before Newsholme's hypothesis can be accepted a great deal more evidence will be necessary.

Newsholme's figures and tables show clearly that the amount of diphtheria is very great in the American cities. He records death-rates (per 100,000) for diphtheria of 109 in New York (average of 28 years, 1868–95), 77 in Chicago (26 years, 1859–94), 100 in Boston (35 years, 1861–95), 114 in Brooklyn (1875–95), and 129 in Pittsburg (1877–94). The highest death-rate from diphtheria ever recorded in London was 76 (per 100,000) in 1893. The average death-rate per 100,000 was in Salford 32 (1860–95), Manchester 18 (1871–96), Liverpool 14 (1860–95), and Sheffield 15 (1859–96). The figures were still lower in others of our great industrial towns. In Holland we find death-rates per 100,000 from diphtheria alone of seven in Rotterdam, 12 in The Hague, and 31 in Amsterdam (all three for 1879–95). Berlin gives 101 (1869–96), St. Petersburg 65 (1879–95), and Moscow 64 (1878–96). The death-rate in Japan appears to be low.

Newsholme's figures generally seem to show that diphtheria is now a disease more of the towns than of the rural districts. It is not very easy to understand how in a city where pavements and other impermeable coverings to the soil are general the bacillus is driven by the rising subsoil water into the air. Of course, it may be driven out of the sewers and sewer ventilators, in which case it becomes a sewer disease rather than a soil disease. Why is it not an air disease? Nobody who has ever smelt the air of Bond-street in a hot July or who has watched the impurities descending from the upper air when they are driven downwards by the first showers after a drought would refuse to allow to the air of a city any amount of potential infectivity. Most of the facts collected by Newsholme are explained as readily, if not more readily, on the theory that diphtheria is an air disease as upon the theory that it is a soil disease. If we remember that a theory is not a fact these speculations will do no harm. Unfortunately this is not always remembered. Diphtheria (Copeman) has been supposed to show a preference for houses on damp clayey soils (Greenhow, Airy) and dampness of habitation (Thursfield). "Although," says Copeman, "dampness of site is undoubtedly a factor in the production of outbreaks of diphtheria, particularly if such dampness be due to persistent leakage from imperfect sewers or cesspools," it does not appear to bear any relation to the rise and fall of the subsoil water.

That diphtheria is a soil disease is certainly not proven.

MALARIA.

A few years ago I should have spoken of "malaria" as undoubtedly caused by something in the soil itself and I should have indulged in the stock phrases about miasmata, mephitic vapours, and the like. The discovery of hæmatozoa in the blood of sufferers from malaria has altered our point of view. The most widely spread poison in the world has become something which is visible and tangible and inoculable. No discovery which has ever been made in the domain of medicine is likely to have such far-reaching effects. Further it seems certain that the infection of human beings may take place viâ the mosquito and we are now concerned to find out whether this is or is not the only medium through which the blood of man receives the parasite. Some who are well qualified to speak would answer in one way and some in another. This is not the place for weighing arguments *pro* and *con* nor can I claim any special knowledge which qualifies me to sit in judgment. Let us assume that it may possibly be shown hereafter that what we have hitherto regarded as "malaria" is a parasitic disease wholly and solely inoculated in us by insects of the mosquito class and that in respect of its mediate infection by animals malaria will fall into line with rabies. We cannot issue a muzzling order to be enforced against mosquitoes nor can we lure stray mosquitoes to their death in some tropical Battersea. We shall have to go more to the root of the matter and while on the one hand we may be able to show Europeans the importance of protecting themselves against the attacks of insects we must still continue to make use of our accumulated knowledge as to the conditions of soil which

indirectly cause remittent fevers to be endemic. Old and well-established facts will now be re-examined by intellects strengthened and widened by the discoveries of Laveran and Ross and our knowledge is sure to be extended and increased. Although the conditions of soil which give rise to malaria are too well known to need any lengthy discussion here it may be well to give some of the latest utterances on the subject.

Sir Joseph Fayrer writing on the "Climate and Some of the Fevers in India" in Allbutt's System of Medicine[12] says of malaria: "It often appears with great virulence after excavation or turning up of soil and in land that has recently been denuded of jungle." ..... "On the other hand, draining and cropping seem after a time to diminish or destroy the poison. Maclean calls attention to the fact that when excavations were made in the island of Hong-Kong which consists entirely of weathered and decaying granite and is liable to be permeated with a peculiar fungus, violent and fatal remittent fever appeared."

Osler says: "An interesting feature in connexion with the disease is the gradual disappearance from certain regions under the influence of drainage and cultivation. In England, even in the fen country it is now almost unknown. In New England, too, it has gradually disappeared. In parts of Canada bordering Lake Ontario which were formerly hotbeds of the disease cases only exceptionally occur." It is well called a soil disease. "Excavations of all sorts, extensive cuttings for railways, and the breaking up on a large scale of virgin soil have in many instances been followed by outbreaks of malaria.[13] "The greater prevalence of fever in the Royal Engineers in comparison with other troops is probably to be accounted for by their more frequent employment in the excavation of the soil. Manson,[14] speaking of Ross's work in connexion with the mosquito, says that although he believes that malaria may be acquired by the bite of the mosquito, he does not believe that this is the only way. Rees of the Seamen's Hospital[15] gives details of an outbreak of intermittent fever (confirmed by examination of the blood by himself and Manson) which affected 22 of the crew of a ship nine days out from Colombo and 14 from Calcutta on her homeward voyage. Air-borne infection or water-borne infection cannot be lightly dismissed.

BLACKWATER FEVER.

Crosse, writing on blackwater fever,[16] says: "Some will ask, Why has blackwater fever become so common recently? The first case on record in the Niger Territory was, so far as I know, my own 10 years ago. The first case on the Niger Delta is said by some old coasters to have occurred in 1882. It seems to me that since we have begun to turn up virgin soil for coffee and other plantations the disease has become common. ..... It is significant that our first three gardeners died of blackwater fever and that for some considerable time cases only occurred near the plantations, and as plantations became common so the disease spread to the other stations in the territories. Castellote notes a case in which a white man personally superintended the digging of a grave and stood about in the sun for two or three hours; next day he had severe fever which developed into blackwater fever." According to Battersby "many virulent attacks after the turning up of virgin soil have been recorded. Almost equally remarkable, according to this observer, is the diminution of the disease which has been brought about in certain localities by drainage and cultivation of the soil."

It is generally conceded that the turning up of virgin soil is one of the most fruitful causes of malignant malarial fevers and numberless examples of this are given in text-books on the subject. Surgeon Bowden, R.N., D.S.O., informs me that the turning up of fresh soil is often followed by an influx of mosquitoes. On the other hand, the cultivation of the soil seems ultimately to lead to the decrease and disappearance of malaria. The broad facts of nature must convince us that this must be so for if man in his attempts to grow food merely increased the deadliness of his surroundings the human race would soon become extinct.

There is a group of diseases which (like malaria) seem to be dependent upon the bites or stings of insects and which, although they affect animals rather than man, throw much light upon the pathology of infection and teach us that so-called "climatic diseases" may be due to something very gross and palpable.

NGANA OR TSETSE FLY DISEASE.

Kanthack, Durham, and Blandford,[17] show that this disease is due to a hæmatozoon (trypanosoma) in the blood inoculated by a fly. Cats, dogs, mice, rabbits, rats, hedgehogs, donkeys, horses and their hybrids seem susceptible. The disease seems to be communicable only by some form of inoculation and is not probably conveyed by feeding on infective material in the absence of superficial lesions. Material taken from the dead body 24 hours after death is not infective. The nearest lymphatic glands to the inoculated spot are the first to suffer. The hæmatozoon gets through the lymphatics to the blood. In the late stages of the disease the animals (especially dogs) may become infected by pyococci, i.e., a spontaneous infection to which the animal is rendered prone by its marasmus. The blood may contain 3,000,000 hæmatozoa per millimetre or may prove infective though none be visible. The trypanosoma sanguinis which is found in a certain proportion of rats has no apparent relation to tsetse fly disease. A similar parasite is said to cause "surra" in India and an allied disease among horses in Algeria. Surra is probably conveyed by flies. Lingard thinks the fodder soiled with rat-dung may give the disease, but that is doubtful. The tsetse fly is a dipterous insect somewhat resembling the common house fly. It has a long thin proboscis, chestnut thorax marked longitudinally by four black lines, and a yellowish white abdomen of five rings. It inhabits principally the low-lying and swampy valleys of the Zambesi and Chobe.

"LOUPING ILL."

This disease, which is common in the North of England and Scotland and which has been noticed as fatal to sheep frequenting certain pastures, has now been shown by Williams, Meek, and Greig Smith[18] to be caused presumably by a special kind of sheep "tick" found on these pastures, which tick is supposed to be hatched in the upper layer of the soil and to inoculate the sheep with micro-organisms which cause the disease—a disease which is characterised by staggering and lameness due to congestion of the brain and spinal cord which have been found post mortem.

TEXAS FEVER OF CATTLE.

This appears to be caused by a hæmatozoon with which the animal is inoculated by a tick (ixodes or boophilus bovis) which is parasitic. The Australian tick fever and the ixodic anæmia of Jamaica appear also to be produced by allied if not identical parasitic animals. Principal Williams, F.R.C.V.S. of the New Veterinary College, Edinburgh, in writing on ixodic anæmia or Texas fever[19] (which he studied in Jamaica) which is due to the infection of cattle with a blood parasite by the agency of a tick (ixodes bovis) insists that every attempt should be made to get rid of the ticks which breed especially in the vegetable rubbish left upon the pastures. "Every effort should be made," he says, "to conserve and increase tick destroyers such as the black tick birds. ..... I have had much amusement in watching these birds, as there seems to be an understanding between them and the cattle whereby they are assisted and encouraged to destroy the ticks." Domestic fowls should be encouraged and starlings and song-thrushes might be imported. To a stranger visiting the island (Jamaica) the scarcity of birds is a striking feature. I have been told that it is due to the mongoose, which has not only diminished the number of wild birds and domestic fowls, but other tick-destroying creatures such as the ground lizard. Now this destruction of the natural tick-destroyers should, as far as possible, be prevented, firstly by legal protection, secondly by encouraging the slaughter of the mongoose." (For further remarks see *Veterinary Journal*, 1896.)

SOUTH AFRICAN HORSE DISEASE.

South African horse disease has no apparent connexion with insects or surface wounds, but appears to depend not upon conditions of the surface soil, but on temporary conditions of the vegetation which forms the pastures.

South African horse disease (œdema-mycosis) is described by Captain Hayes, F.R.C.V.S., in his translation of Friedberger and Frohner's Veterinary Pathology, and is supposed by Edington to be caused by a mould (penicillium) which grows in the vessels causing thrombosis and exudation of serum with fatal results. It appears to occur chiefly among animals which are allowed to graze while the dew is on the grass and the growth of the microbe is supposed to be connected with the dampness of the grass. The disease once contracted is almost always fatal, but the prophylactic appears to be dry fodder and the folding of horses until the sun has dissipated the moisture of the dews.

The history of those diseases which appear to depend on inoculations points with no uncertainty to the advisability of keeping a whole skin. The "verminous person" has assumed an importance in relation to the public health which the Legislature has already recognised, while the "tramp" with his special liability to small-pox is one to whom the anti-vaccinationist is likely to discover a "conscientious objection." The special liability of the "tramp" to suffer from small-pox—if such is really the case—seems to offer a field of investigation well worthy of being methodically explored.

There are other diseases more or less suspected of being soil diseases, but the facts are at present too few to make any discussion profitable. These are yellow fever, beri-beri, swine fever (undoubtedly propagated by fouling of the surface soil), cancer (?), thread worms, hydatids, and ankylostomum duodenale. Malignant œdema is an infective disease of wounds undoubtedly caused by a ubiquitous anaerobic saprophyte which occasionally manages to grow in the cellular tissue and to generate gas (CO_2, H, SH_2, CH_4) therein.

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[12] Vol. ii., p. 311.

[13] I recently discussed this subject with two gentlemen who were intimately connected with Indian railways and who professed ignorance of any danger arising from recent cuttings.

[14] Brit. Med. Jour., Sept. 24th, 1898.

[15] Ibid., Sept. 24th, 1898. [16] Ibid., Oct. 8th, 1898.

[17] Proceedings of the Royal Society, vol. lxiv., p. 100.

[18] Veterinarian, 1896-97.

[19] Principles and Practice of Veterinary Medicine, p. 416, et seq.

WIGAN MEDICAL SOCIETY.—The annual meeting of this society was held on Feb. 9th, when the following office-bearers were elected:—President: Mr. Luther Cooke. Committee: Mr. Street, Mr. Graham, Mr. Roocroft, Mr. Brady, Mr. Cowan, Dr. White, and Dr. Benson, with the president, honorary treasurer, and honorary secretary *ex-officio*. Honorary treasurer: Mr. E. H. Monks. Honorary secretary: Mr. William Berry. The annual dinner was then held. The following visitors were present: Mr. W. Mitchell Banks and Dr. Barr of Liverpool and Dr. Hayward, President of the St. Helen's Medical Society.

ABSTRACT OF THE

Lettsomian Lectures

ON

SOME OF THE CLINICAL ASPECTS OF GRANULAR KIDNEY.

Delivered before the Medical Society of London

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LECTURE II.[1]

Delivered on Feb. 20th, 1899.

ALBUMINURIA.

GENTLEMEN,—Of albuminuria in granular kidney it is not necessary to say much. We know that it is usually small in amount and that it is not constantly present. It may be found at special times only or may be absent for irregular periods, and it might therefore be described as cyclical or intermittent respectively. It may be absent for long periods—even, it is said, altogether—though this is hard to prove. Given a clear case of granular kidney these variations in the albuminuria do not cause surprise but clinically the question often presents itself in a somewhat different form. In a given case albuminuria may be the chief symptom. We have then to decide whether granular kidney is the cause or not. It often happens that the evidence is not conclusive for the patient appears to be in ordinary conditions of health. We are thus introduced to a problem of very great difficulty which, in spite of the attention which it has in recent years attracted, is still far from being settled—viz., that of so-called physiological or functional albuminuria.

The forms of albuminuria may be arranged into five groups:—

Albuminuria	Prerenal	1. Obvious cause—e.g., morbus cordis, fevers, &c.	Physiological.
		2. No obvious cause	
	Renal	3. No evident renal disease	
		4. Evident renal disease.	
	Postrenal	5. From urinary passages, &c., generative organs, vagina (accidental).	

Experimentally albuminuria has been produced in perfectly healthy persons by excessively albuminous diet, by violent muscular exercise, by cold bathing and exposure to cold; but even then it is probably not capable of being produced in every person or at any rate not with equal ease, so that even in such cases some other factor is necessary. Again, in an apparently healthy person albumin may be found occasionally present under certain circumstances—as for instance on rising in the morning or after food—and the albuminuria has then been called postural, dietetic, cyclical, or intermittent respectively. Intermissions or variations in the occurrence of albuminuria are no evidence that there is no disease of the kidneys. Admitting all these exceptions, there remains a group of cases in which albuminuria is present with apparently nothing whatever in the previous history or the actual condition of the patient to explain it. The choice of a term by which these cases can best be described is difficult. It is unfortunate that so many terms have been used which do no more than describe the special circumstance under which the albuminuria appears. Latent albuminuria is perhaps the term to which least objection can be raised, but it is often not so much latent as overlooked. Albuminuria in the apparently healthy seems to me on the whole to be the least objectionable term to use and to state the facts best.

The statements made by different observers as to the frequency with which albuminuria occurs in the apparently healthy vary greatly. Variations so considerable in observations made by equally competent observers show that there must be a fallacy somewhere and it may lie in the fact that different sets of cases have been observed or different tests employed. Looking broadly at the figures given by the different authors these facts are evident—(1) that the majority of observations upon which the statements are based have been made upon children and adolescents and (2) those almost entirely of the male sex, and (3) that the higher percentages have been obtained by including cases in which very minute traces of albumin were found by the most delicate tests.

Roughly speaking, the cases thus group themselves into two periods—(1) those before the age of 25 years and (2) those after 25 years.

There are many forms of albumin, but we need only consider two forms: (1) serum albumin, which for our purpose will also include serum globulin; and (2) nucleo-albumin, a mucin-like body which has been till lately confused with mucin. It is by reckoning nucleo-albumin in with serum-albumin that the high percentages of albuminuria have been obtained.

There is no single test upon which reliance can be placed to distinguish absolutely between nucleo-albumin and serum-albumin, but the series of tests systematically used in order will suffice to make the distinction quite clearly in most cases. Desiring to form my own opinion upon this question I asked Mr. Levison to undertake some observations for me. He examined 336 healthy persons, of whom 108 were young soldiers; the rest were hospital convalescents. A proteid reaction of some kind was obtained in 136, or 40·47 per cent., and of this serum-albumin occurred in 22·02 per cent. and nucleo-albumin in 18·05 per cent. The amount of albumin in all cases was extremely small and probably in half the cases would have been overlooked in the ordinary methods of examination. The largest amount in these series was not more than would give a ring of one to two millimetres in thickness with nitric acid. Nucleo-albumin was found alone in nearly one-half of the cases, 18·44 per cent., and this was the same in both the groups—i.e., before 25 years of age as well as after 25 years. No clinical difference could be detected between the cases with serum-albumin and those with nucleo-albumin. These observations show that the ordinary statements made as to the great frequency of albuminuria in apparently healthy persons is not overstated if all those cases be included in which there is the minutest possible trace evident only on careful examination, but inasmuch as in most of these cases, probably one-half, the trace is so small that it can only be detected with great care when specially looked for the contrast between these results and the general impression obtained from ordinary clinical experience is not so great as at first sight it appears to be.

It is also evident, as I have already stated, that the conclusions drawn as to the frequency of albuminuria in one age-period must not be applied without due allowance to any other age-period and that speaking generally the significance is entirely different before 25 and after 25 years of age. What is required is a systematic series of observations in which the same carefully-selected tests have been employed and a sufficient number of cases of the one sex and of the other examined at the different age-periods: (1) in infants up to the age of five years; (2) in young children of from five to 10 years of age; (3) in boys or girls of from 10 to 18 years of age—i.e., the school age; (4) in young adolescents of from 18 to 25 years of age; (5) in young adults of from 25 to 35 years of age: (6) in the middle period of life—i.e., from 35 to 50 years of age; and (7) in the later periods of life, over 50 years of age. Of albuminuria in infancy and early childhood we have not much information. Albuminuria is said to be less frequent up to the age of 10 years. For the period from 10 to 18 years statistics abound and show the extraordinary frequency of albuminuria. Although the amount of albumin is usually small it may be considerable. It has been suggested that the presence of albuminuria at these ages is due to the active development of the sexual organs and probably also to the presence in the urine of discharges derived from these organs and that the form of albumin is generally nucleo-albumin. The albumin is, however, generally serum-albumin and not nucleo-albumin and there is no proof that nucleo-albumin is derived from the urinary passages and not from the kidney. Nor is there any proof that masturbation is a predisposing cause; indeed, what evidence there is is against it.

In young adolescents of from 18 to 25 years of age it is upon cases of this period that most of the statements as to physiological albuminuria in adults are based. Most of the observations have been made upon young soldiers. The 108 young

[1] Lecture I. was delivered on Feb. 6th and published in THE LANCET of Feb. 11th, 1899, and Lecture III. will be delivered on March 6th, 1899.

soldiers whom Mr. Levison examined ranged from 17 to 27 years of age, but of these only eight were above 25 years of age. A proteid reaction of some kind was found in 51 cases (47·25 per cent.). This was due to serum-albumin in 30 cases (27·75 per cent.) and to nucleo-albumin in 21 cases (19·50 per cent.). The effect of exercise is well shown; thus morning drill considerably increased the total frequency of albuminuria but made no difference in the relative frequency in the two kinds of albumin.

With regard to young adults of from 25 to 30 years of age I find that at the Provident Clerks Life Assurance Association in the course of the five years, 1893 to 1898, 7950 policies came before the office. Out of this number 25 cases were found to have albumin in the urine. This was a percentage well under one, actually of 0·55. At another office for the period of 10 years the number of applicants below 30 years of age was, roughly speaking, about 750, and out of these seven only were deferred or rejected on the ground of albuminuria. This gives a percentage of nearly one. No doubt more precise examination would have raised this percentage somewhat; still I think the facts are sufficient to show that at this age-period albuminuria is very infrequent and probably stands at its lowest point in life.

After 30 years of age there are a great many figures to show the general frequency of albuminuria for all ages during the insurance period, but they tell us little of what we really want to know—viz., the relative prevalence of albuminuria at the different age-periods throughout adult life. With these we may compare Mr. Levison's figures which yield a much higher average percentage—40 per cent. The difference in results is evidently due to the different tests employed. It would greatly simplify matters if we could agree upon a standard test, and the best in my opinion would be Heller's. An amount of albumin which cannot be shown by Heller's test may *quâ* albumin be disregarded clinically.

Latent albuminuria—i.e., in the apparently healthy, apart from its scientific interest, has a practical bearing in boyhood as affecting the school career, in young men as affecting the chance of appointments, and in adult life as affecting insurance. In considering the significance of albuminuria it will be well to retain the division into two groups, before and after 25 years of age, as we have hitherto done.

I. Significance in boys and adolescents.—Albuminuria is common during the period of growth and immaturity and becomes less frequent when development is approaching completion. The question arises whether we can connect these two facts together. I think we probably may. Assuming that during the period of growth all the tissues of the body are in a condition of instability and immaturity it is easy to suppose that very slight causes might disturb their balance and thus in the case of the kidneys albumin might appear in the urine as the result of causes which would have no effect upon the fully developed or adult organism or organ. What the clinical significance of this albuminuria in childhood and adolescence is can only be determined by clinical observation, by carefully investigating the cases at the time and watching them over a long period. Now, as regards the boys in whom albuminuria is found they appear to fall into at least two groups. In one the child appears to be robust and healthy, has a rigid artery and a high tension; these are the cases which Dr. Clement Dukes has recorded as being so frequently met with in schoolboys. In the other the children are not robust and healthy, but are feeble and pale, and in them the tension is low and the artery is not thickened. These two groups probably indicate not only different conditions but different prognoses. In no case is the albuminuria, strictly speaking, physiological; it is always pathological, though not necessarily renal. What we require to know is the course which these cases run in after-life. If albuminuria is so common in youth and adolescence and becomes so much less frequent in early adult life it follows that many of the cases have no very serious significance—in other words, that they get well. This, indeed, we also know from direct observation. Yet with those who have most experience there is evidently still some lurking doubt about the ultimate result in not a few instances. Granting that many, perhaps the majority, ultimately recover there remains another group in which the patients continue to pass albumin for many years and yet remain in good health and a third in which signs of renal disease ultimately develop. Making all allowance for exceptional cases such as these the significance of albuminuria in early life must for the present still remain doubtful.

II. Significance after 25 years of age—i.e., in adult life.—This is important in relation to life insurance. Before 25 years of age many cases may be curable; after 25 years of age the chances of renal disease increase rapidly. Conclusions drawn from cases under 25 years cannot be applied without consideration to cases over 25 years. There is a great difference of opinion professionally as to the significance and importance of the traces of albumin met with in otherwise apparently healthy persons applying for insurance and I think there is also much difference in practice. It would be important, therefore, to trace these cases in order to ascertain what becomes of them in after-life. In some instances this has been done. Thus, in Washbourn's series, out of 1070 cases 38 had albuminuria—that is to say, 3·55 per cent. Of these 38 cases 18 were traced; out of 18 cases 6 developed renal disease for certain and five more probably, giving a percentage of not less than 33 and possibly of 60. Washbourn calculated that the mortality-rate among these cases for the age was 17·54 per cent.—that is to say, it was nearly double the normal average. Munn found that out of 25 cases one died within the year following the examination, and four more died during the subsequent three years, while in all the rest the health had obviously deteriorated. In another series of 6400 adults examined between the years 1877 and 1893, 454 cases of albuminuria were found. Of 137 cases among these in which the urine was examined microscopically casts were found in 31—i.e., in about 23 per cent. Thus in round numbers albumin occurred in about 7 per cent. of all apparently healthy adults, and the probability of finding casts in the urine associated with albumin was about one in four. For the first eight years or so nearly all the cases were traced and the record is remarkably complete; after this many apparently were lost sight of. During those eight years the total mortality in cases under 40 years of age was 17 per cent. and in cases over 40 years of age 30 per cent.—a very considerable death-rate for presumably healthy lives. Evidently therefore the albuminuria largely increased the risk. In this class, taking eight years also, the mortality was still higher—viz., 20 per cent. and 50 per cent. respectively.

The following table has been calculated out for me by an actuary friend to show approximately as far as the figures permit the difference in mortality compared with healthy males, and to make the result more obvious they have been taken for differences of two years of age.

Ages attained.*	Rate of following year.		Ages attained.	Rate of following year.	
	Rate from figures.	Normal rate.		Rate from figures.	Normal rate.
30	—	—	50½	3·70	1·97
32	1·56	1·06	52½	2·64	2·20
34	3·27	1·11	54½	3·74	2·43
36	3·33	1·16	56½	7·13	2·69

* Starting with an average of those given and assuming uniform increase for eight years.

Without laying any stress upon the actual figures these calculations show how largely the presence of albuminuria raises the mortality as well in those below 40 as in those above. We must conclude, therefore, that for the ages at which life insurances are generally effected—i.e., from 25 years upwards—the presence of even a trace of albumin in the urine is of considerable significance. It is more and more likely to mean disease as age advances, and therefore the risk to the office continually increases. Even at the earlier periods, from 25 to 35 years, it is a question whether these lives should be accepted even with a considerable addition, owing to the difficulty of excluding the commencement of granular kidney. Rabagliati threw his conclusions into the following form: (1) over 40 years of age reject; (2) under 40 years of age load heavily; and (3) in young adults rate up moderately. With the first recommendation I entirely concur. The second is necessary, but the loading might be prohibitive and tantamount to rejection for any age over 30 years. In respect of the third between 25 and 30 years there would have to be a fairly heavy loading, but between 18 and 25 years many cases could be safely accepted without any great risk. Each case of this kind, however, must be considered on its merits. Albuminuria is not the only fact to be considered, suspicious as it

may be, and just as a diagnosis should not be made on a single physical sign, neither should a life be rejected on a single physical sign. At each age there may be innocent and harmful albuminuria, and it is the business of the physician to distinguish if possible between them.

The general conclusions to which these considerations lead are these: that the so-called physiological albuminuria is always pathological even if not always renal when the amount of albumin is more than the merest trace, and probably pathological even in these cases when there is but a trace and no good cause obvious. It is clear, therefore, that in every case the patient must be carefully examined, every possible cause of albuminuria searched for, and every other condition in the patient noted. If nothing else be found and the albuminuria exist alone it may possibly be harmless or accidental and of no serious significance. If renal derivatives are found as well as albumin it must be almost necessarily due to renal disease, and this is in all probability also the case even if no renal derivatives are found in patients in whom the arteries are thickened and the pulse-tension is high.

ALBUMINURIC RETINITIS.

Albuminuric retinitis brings me to another group of signs—viz., those of the later stage—for typical as albuminuric retinitis is it is of no help in the early diagnosis, as it only occurs late in the disease when the arteries are degenerate and the kidney mischief is far advanced. In its early stage and typical form albuminuric retinitis is characteristic and pathognomonic—i.e., it occurs in no other condition except that of chronic renal disease. The lesions of albuminuric retinitis consist in (1) white patches, (2) hæmorrhages, (3) exudations, and (4) inflammatory conditions. They generally develop in the order in which I have placed them. Of these changes the earliest and most characteristic are the white patches which are generally found in the region of the macula or yellow spot. The question arises whether albuminuric retinitis occurs in any other form of chronic renal disease than granular kidney. In amyloid disease I know of no instance recorded and I have not seen a case myself, but amyloid disease is rare nowadays so that my experience of it is small. In acute parenchymatous nephritis it is never seen, but it is stated to occur occasionally in chronic parenchymatous nephritis. The nature of the retinal change in both cases is the same—viz., small white patches symmetrically placed in both eyes. In their typical and favourite form they are arranged in a radiating fashion around the yellow spot, like spokes in a wheel. Then they are usually found in both eyes and are remarkably symmetrical in position. In very early stages they may be so minute as to be easily overlooked. The white patches may for a long time be the only lesion visible if we disregard for the present certain changes in the vessels which are probably still earlier and which will be referred to later.

Hæmorrhages generally occur at a later period. They are minute and flame-shaped if seated in the upper layers of the retina, but if in the deeper layers they are larger and less regular, sometimes they are also numerous round about the yellow spot, but at other times they are scattered widely over the fundus; when they are of considerable size they naturally interfere seriously with vision. There is nothing characteristic about them, for similar hæmorrhages may be seen in grave anæmia and in optic neuritis of other origin. They may in time be absorbed, sometimes without leaving any trace behind. When exudations occur the appearances present a close resemblance to other forms of optic neuritis; thus the vessels may be covered with effusion, the discs be swollen, and the edges be indistinct and frayed out; yet even in the most extreme cases there is generally something in the appearance of the fundus to suggest the cause of the trouble. Early as the white patches are they are preceded and result from still earlier changes in the vessels. The lesions in the vessels have been carefully studied by Brailey and Edmunds, and are briefly described by them as obliterative arteritis leading to inflammatory degeneration of the structures supplied. The ophthalmoscopic appearances connected with these changes have been admirably described by Mr. Marcus Gunn. He thus connects them with the changes in the vessels: narrowness and irregular size of the vessels is explained by the thickening and by the diminished lumen; the tortuosity by the increased rigidity and loss of elasticity; the increased light reflex and the bright central streak by the fibro-hyaline change; and the distension of the veins by the great thickening and resistance of the artery as it lies upon them. The difficulty of circulation leads to the general œdema; the progressive disease of the vessel to hæmorrhage; and the defective nutrition of the nerve-cells and fibres to the white patches. The radiating arrangement, the white patches round the yellow spot, he refers to the radiating folds into which the retina in that region is thrown when œdema occurs there. The changes described, Gunn states, begin to be seen usually between the ages of 40 and 50 years, but they are not due to old age—i.e., to atheroma—for this does not produce them, but they may occur much earlier in life than this. The changes of which Gunn gives so good a description are really the early changes of granular kidney. It is obvious that the degenerative changes described, though generally bilateral and more or less symmetrical, might be unilateral, so that a high degree of albuminuric retinitis might be found in one eye while the other remained perfectly normal or nearly so.

The vascular changes of granular kidney are of great importance in relation to various hæmorrhagic affections of the eye—e.g., hæmorrhagic retinitis and hæmorrhagic glaucoma. Hæmorrhage occasionally occurs behind the eyeball in the orbital chamber. Spontaneous hæmorrhage under the conjunctiva, just as occurs in aged people as the result of atheroma, is not at all uncommon. Detached retina is an interesting but not altogether rare phenomenon in granular kidney. It is in most cases due to an effusion of serum beneath the retina and not, as might be expected, of blood. I have seen hæmorrhagic detachment of the retina but it is a rare affection. The early lesions of albuminuric retinitis produce no defect of vision and even in the later stages it is very remarkable how extreme the eye changes may be without a complaint being made of impairment of sight. Routine examination with the ophthalmoscope will often discover albuminuric retinitis when it is not expected and will make a diagnosis clear which may till then have been obscure. As a rule we may say that when patients complain of defect of vision the albuminuric retinitis is already very far advanced. When the vision once begins to fail it fails rapidly.

Amblyopia is often said to be a common symptom of uræmia and is usually regarded as either of peripheral origin in the retina or central in the brain or special ganglion. Most of these statements date from a time when the ophthalmoscope was not systematically used. Of toxic retinal amblyopia we know little or nothing, for most of the cases are associated with very definite lesions in the retina visible with the ophthalmoscope. The amblyopia of central origin—i.e., non-retinal—is often associated with other symptoms—e.g., hemiplegia. In such cases the amblyopia is also due to lesions of an organic kind. It is not rare when a patient dies from uræmia to find the symptoms which appeared to be merely toxic or functional explained by an organic lesion in the brain—viz., small hæmorrhages. In cases of amblyopia in which the defect of sight persists after the uræmic attack is past we must presume that there has been an organic lesion. In cases of toxic amblyopia recovery ought to take place in the course of a few hours or less, though instances are recorded in which recovery has been sudden and complete even after four days. Some clue as to place of origin of the amblyopia may be given by the condition of the pupil. It would be an interesting question to ascertain in what proportion of cases of granular kidney albuminuric retinitis occurs, but that is impossible, for we have not yet the figures upon which a conclusion could be based. I shou'd say that in most cases of granular kidney, if the patients live long enough, albuminuric retinitis does ultimately develop, but a large number of patients with granular kidney die from other causes—e.g., from hæmorrhage in the brain, and so do not reach the state in which albuminuric retinitis develops. Albuminuric retinitis is said sometimes to disappear. On this point, I think, some caution must be exercised. Hæmorrhage, of course, may be absorbed and may disappear, whether due to granular kidney or not, but I have never seen the glistening white patches of granular kidney disappear, though instances are recorded by good observers. It is, of course, possible where eye changes occur in the course of chronic parenchymatous nephritis that if the primary disease gets well the eye changes also may disappear; but this is not so in granular kidney. The significance of albuminuric retinitis is always grave, not only in respect of sight but also of life. The duration of albuminuric retinitis, or of life after its appearance, it is not possible to determine accurately. Speaking

generally, the duration of life after albuminuric retinitis has been discovered is short. Where the patients are in a condition to take the best care of themselves life may be prolonged for some time, but such cases are quite exceptional, and, speaking generally, when albuminuric retinitis is found the patients have not many months to live.

ON TWO NEW MODIFICATIONS OF ENTERORRHAPHY,

WITH A SHORT REVIEW OF THE SUBJECT.

BY ALEXANDER MACLENNAN, M.B. GLASG., L.M. ROTUNDA.

Is it a proof of imperfection in our present methods of intestinal anastomoses or enterorrhaphy that almost every day sees another plan added to those already described, or is it simply due to the attractiveness and fascination of the subject? There can be little doubt that modern operators continue to employ various methods, many of them their own or their own modifications of recognised and classical operations. This divergence of procedure shows at least that no one method is so superior as to hold the field to the exclusion of others. The earlier methods have had time to be tested and after all is said and done many modern operators[1] prefer the simple stitch of Lembert (a single line of sutures), the Czerny Lembert[2] (a double line of sutures), or the Czerny method as modified by Wölfler.[3] These methods have been tested by experience and a striking proof of their efficacy is the fact that one or other of them is resorted to when a would-be new method fails when attempted on the intestine of an animal. Bier[4] thinks the Lembert suture excellent and he has employed it successfully many times. Edmunds and Ballance[5] in an experimental research into the relative merits of the various recognised methods have found that the Czerny suture is apt to be followed by a diaphragmatic ring projecting as a ledge into the bowel and producing a degree of annular stricture. This result probably arises from inserting the stitches too far from the cut margin.

The great drawback to these operations is, however, the time involved, while they require a considerable degree of manipulative skill. It would be quite impossible even to mention all the various operations suggested for intestinal anastomosis without writing a large treatise on the subject. For the purpose of this paper it will suffice to mention some of the leading types.

By Senn's[6] method of lateral anastomosis with the aid of decalcified bone plates an immense number of experiments has been done and the testimony in its favour is considerable, while some observers[7] have enthusiastically advocated its adoption. Baracz[8] in an exhaustive paper on this subject recommends it strongly and holds that Senn's invention is a great advance in intestinal surgery, but he states that perhaps where there is great relative disproportion between the ends to be united (as happens often in cases of strangulation) Senn's method of lateral anastomosis is not so suitable. Reichel,[9] however, thinks it difficult to avoid perforating the gut while sewing over the plates and also that the blind ends are apt to facilitate the formation of concretions which may eventually obstruct the new lumen. Frey[10] mentions that sloughing may take place over the borders of the plates.

Senn's method has been modified by numerous surgeons, the chief alteration consisting in the substitution for bone plates of such substances as catgut (made into mats and rings),[11] raw potato,[12] beetroot and turnip,[13] fresh ox-hide and segmented rubber plates,[14] or segmented rubber rings,[15] held together by strands of cat-gut. Jessett[16] in his work, however, states that bone plates are much the best. Littlewood[17] and Jessett[18] join the two plates by means of a tube of bone and state that there is less chance of the two corresponding openings in the bowel becoming displaced. (Senn has also modified Jobert's invagination method and his operation is usually described in the text-books.)

There does not seem to be much published disapprobation of Senn's lateral method (with the exception of Reichel's),[19] but one rarely sees the operation performed. Is this due to the complicated appearance of the description or to the general dislike of surgeons[20] to the employment of mechanical contrivances which are perfect only in theory? Operators like to see everything safe and prefer to take all the responsibility rather than depend on any instrument. Anastomosis by Senn's method can be carried out fairly quickly, but the stitching which is essential naturally occupies some time. The bone plates are somewhat bulky and must be to some extent a disturbing element in the healing process, while rings and mats of catgut are absorbed too quickly.[21] It does seem strange that the ends of the intestine should be carefully sewn up and two new openings made all in order to allow of the use of the bone plates.

The methods of lateral anastomosis of Abbe[22] and Halsted[23] involve even more sewing. Halsted's method, however, receives the support of Edmunds and Ballance[24] and of Greig Smith and Jessett.[25]

Maunsell's[26] method, perhaps the best of the end-to-end unions where simple suturing is resorted to, is generally conceded as being specially applicable to cases of intussusception. It gives a perfect mucous "first line of defence." The extra longitudinal incision made to enable the suturing to be performed from within is however objectionable.[27] The same fault can be found with Ullmann's[28] method which is an improved type of Maunsell's operation. Maunsell's operation has also been modified by Jessett, Barker, and Bier.[29] According to Edmunds and Ballance there is no resulting ring of contraction and they state that it is the best method for end-to-end junctions.

Of the many methods utilising the principle of invagination those of Nicoll,[30] Paul,[31] Robinson,[32] and Senn are types. Paul and Robinson employ bone or rubber tubes while Senn and Nicoll discard them. The bone tubes, &c., used by those operators are too long, and there is in Paul's method the risk of invagination beginning in front of the tube and so producing an artificial intussusception. The treatment of the bowel in Robinson's method is too rough and must greatly interfere with the blood-supply of the parts which are left to unite. Its principle has been described independently by Jessett, Nicoll, and Skelly.[33]

Bishop's[34] method, principally brought forward to avoid an annular contraction ring, is difficult and tedious[35] to perform.

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[1] Marmaduke Sheild: THE LANCET, March 27th, 1897, p. 882. Cripps: Brit. Med. Jour., vol. i., 1896, p. 1201.

[2] For literature see paper by Bier.

[3] Wölfler cit. from Maylard, Surgery of the Alimentary Canal, 1896.

[4] Langenbeck's Archiv, Band xlix., 1895, p. 739.

[5] Observations and Experiments on Intestinal and Gastro-Intestinal Anastomoses, Transactions of the Royal Medical and Chirurgical Society, vol. lxxix.; Brit. Med. Jour., vol. i. 1896, p. 1200.

[6] Transactions of the Ninth International Medical Congress of Washington, vol. i., p. 460; Experimental Surgery, Chicago, 1889, p. 399; Journal of American Medical Science, June, 1890. See also paper by Baracz for full list of references.

[7] Baracz and Rasumowsky: loc. cit.

[8] Langenbeck's Archiv, 1892.

[9] Ueber den Werth der Senn'schen Darmnaht und Bildung einer Darmanastomose, Münchener Medicinische Wochenschrift, 1890, p. 169.

[10] Ueber die Technik der Darmnaht, Beitrag zur Klinischen Chirurgie, Band xiv., No. 1.

[11] Davis: Times and Register, vol. xx., No. 585, Jan. 25th and Feb. 1st, 1890; New York Medical Record, 1889. Abbe: New York Medical Journal, March 29th, 1889; Medical Press and Circular, 1892, vol. ii., p. 188 (for method of lateral anastomoses). Matas: Circular Enterorrhaphy with catgut rings, New Orleans Medical and Surgical Journal, July, 1889, and August, 1890.

[12] Rasumowsky: Die Bildung der seitlichen Darmanastomose mittelst Kartoffelplatten, Langenbeck's Archiv, vol. l., 1895. Dawbarn: Medical Record, New York, June, 1891; Annals of Surgery, 1893, vol. xvii., p. 147.

[13] Baracz: Langenbeck's Archiv, 1892, p. 521.

[14] Robinson: North American Practitioner, vol. ii., No. 10, p. 451; New York Medical Journal, 1890, vol. lii., p. 429.

[15] Brokaw: Medical News, Dec. 7th, 1889.

[16] Surgical Diseases of the Stomach, 1892.

[17] THE LANCET, April 16th, 1892, p. 865.

[18] Surgical Diseases of the Stomach.

[19] Loc. cit.

[20] Cripps: Brit. Med. Jour., vol. i., 1896, p. 1201.

[21] Baracz: Langenbeck's Archiv, 1892, p. 546.

[22] New York Medical Journal, 1889.

[23] Cit. from Jessett.

[24] Loc. cit.

[25] Brit. Med. Jour., vol. i., 1896, p. 1200.

[26] International Journal of Medical Science, 1892, New Series, vol. ciii., p. 245; Transactions of the Inter-colonial Medical Congress of Australasia, 1889.

[27] Jessett: Surgical Diseases of the Stomach, p. 273.

[28] Cit. from Schaldemose, Jahresbericht der Medicin, 1898; Zur Technik der circulären Darmvereinigung, Centralblatt für Chirurgie, No. 51.

[29] Cit. from Maylard, p. 532.

[30] Transactions of the Glasgow Medico-Chirurgical Society, vol. i., p. 76.

[31] Liverpool Medico-Chirurgical Journal, 1892, vol. xii., p. 477.

[32] Annals of Surgery, 1891, vol. xiii., p. 26.

[33] Ibid., September, 1898.

[34] Transactions of the Royal Medical and Chirurgical Society, vol. lxx.

[35] Greig Smith: Abdominal Surgery, p. 413.

Mayo Robson[36] has recommended and used decalcified bone bobbins over which the intestine is sutured. In desperate cases where the saving of time is of paramount importance he does not mind risking only a single line of deep sutures.

Allingham[37] has modified the bobbins and Hayes[38] is responsible for yet another variation. There must, however, be considerable pressure of the bowel between the resisting bobbin and the operator's fingers during the process of suturing. Harrison Cripps[39] thinks the bobbins are apt to become impacted and also to cause necrosis of the intestine. Edmunds and Ballance agree with him and also with Bidwell who asserts that bobbins tend to obstruct the lumen. To overcome this objection Downes[40] sutures over a ring and subsequently makes an incision in the gut in order to remove this ring. Landerer[41] of Leipsic uses potato or turnip bobbins.

Probably the greatest step forward[42] has been made by Murphy[43] by the introduction of his metallic button, though one writer describes it as the "most popular ..... most dangerous" button.[44] The general distrust of all instruments delayed for some time its adoption both in this country and on the Continent, but within the last few years it has been extensively employed and there is a corresponding mass of literature on the subject. By this time probably all the merits and demerits of the instrument have been fully discussed and chronicled. The button being of metal is heavy, and Abbe[45] reports a case where its weight caused the intestine to kink with subsequent obstruction. It is generally admitted that it is prone to cause ulceration,[46] especially if too large a button be employed. Many of the instruments now in the market are quite unreliable and so faultily made that they do not bite equally all round.[47] In this way the button may eventually come to hang loose in the lumen like the tongue of a bell. To close the two valves firmly enough so as to get the quickest and best union pressure has to be transmitted through the intestine and this might be brought forward as an objection. Murphy did not intend that a Lembert suture should be used to complete the operation, and, indeed, Marwendel[48] has demonstrated a case where this superadded "safety" suture was the cause of a perforation. Orzet[49] also thinks it not only unnecessary but dangerous to employ any such suture over the Murphy button. Bishop[50] in bringing forward the merits of his internal suture states that adhesions to the omentum or surrounding the seat of union almost always follow enterorrhaphy, and he affirms that external sutures increase this tendency. Graff,[51] on the other hand, thinks the Lembert suture safer and always adds it. To put in this suture requires more time and necessitates more manipulation of the intestine-covered button. In gastric operations Jonnesco[52] thinks it a drawback that the incision in the stomach to admit the button requires to be so much larger than the available lumen of the new passage. A drawback of some moment seems to be the narrowness of the lumen of the instrument relative to its circumference.[53] Graff[54] cites a case of Duvivier[55] where obstruction was produced and he mentions two other cases where the passage through the button became completely occluded by intestinal contents.[56] This he states as likely to occur in the colon and the lower reaches of the ileum. He thinks a tendency to enlarge the button to get a larger lumen would accentuate its action as a foreign body. Notwithstanding these defects Graff gives the button a whole-hearted recommendation and thinks it the best means at our disposal. He cites cases of gastric operations where the button has fallen back into the stomach and remained there during life without causing symptoms. On post-mortem examination no change was found to have followed its presence in that organ. Kümmel[57] has also observed the backward fall of the button into the stomach, and Allis[58] reports a case were the button remained 16 months in that viscus. If, however, such a button has difficulty in passing through the new exit from the stomach it will meet with a similar obstacle at the ileo-cæcal valve. Most surgeons do not feel quite free from anxiety until the button passes *per viam naturalem*. Graff warns operators that the use of the Murphy's button requires practice and that if the two valves are too firmly pressed together sloughing occurs too soon, while if not firmly enough good union does not take place or there may be leakage. Regarding the question of secondary contraction at the seat of junction Bretano[59] found that in 398 collected cases it occurred only three times. Frank,[60] in demonstrating his method which acts much in the same way, denies the possibility of the occurrence of secondary stricture and probably such a tendency is very remote. Naturally there are a great and rapidly increasing number of modifications of Murphy's button.

Chaput's[61] latest design is lighter (and less expensive), as effective, and has a relatively larger lumen, while its mechanism is simpler.

Boari[62] has made the tubal portion of the button of metal while the remainder consists of bone only partially decalcified. This instrument he affirms does not tend to remain for indefinite periods in the abdomen but only long enough for its purpose.

Martin Gil[63] has described the manner of use of a button of decalcified ivory.

Frank[64] has described and demonstrated his modification which consists of two solid end-pieces of decalcified bone joined by a rubber tube, sufficiently short to ensure their close apposition and to prevent their separation except by stretching the tube. The action of this appliance is the same as Murphy's button. It is light and cannot certainly remain long in the bowel, but the separation of the valves is difficult and requires such force that damage[65] may result to the intestine while the available lumen is small. It is not to be recommended for gastric operations.[66]

Jackson Clarke,[67] from experiments on the cadaver, gives an account of a new method which from the description promises well. His adjustment of the two rings over his rubber bobbin might in some circumstances require an amount of force, the employment of which would be injudicious. The rubber mechanism must tend to constitute a considerable foreign body.

So far, then, there seem to be objections to every method and no one method can be said to be of universal application. Different inventions may adapt themselves to different conditions and certainly the science of surgery is not the poorer because of the multiplicity of procedures for intestinal anastomoses. Edmunds and Ballance in their investigation already referred to attempted to solve the comparative value of the many methods in vogue. As a result they advocate Maunsell's method for end-to-end and Halsted's for lateral anastomosis. The conclusions arrived at from their investigation might be accepted as accurate were it not that the conditions found in animals differ so greatly from those in man.

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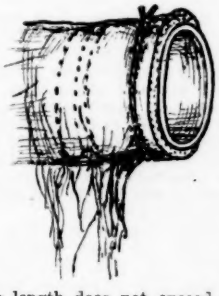
[36] Brit. Med. Jour., vol. i., 1893, p. 989, and vol. ii., 1895, p. 963.
[37] THE LANCET, August 31st, 1895, p. 518.
[38] THE LANCET, Dec. 28th, 1895, p. 1619.
[39] Brit. Med. Jour., vol. i., 1896, p. 1201.
[40] Medical and Surgical Reports, July, 1896.
[41] Centralblatt für Chirurgie, No. 13, 1895.
[42] Gamgee, in a letter to THE LANCET of Oct. 19th, 1895, has drawn attention to an early method known as Denaus's, described in Chélius's System of Surgery, p. 484, vol. i., 1847, where the principle of the Murphy button seems to have been utilised.
[43] New York Medical Record, 1892 and 1894. THE LANCET, April 27th, 1895, p. 1042.
[44] Skelly: loc. cit. [45] Annals of Surgery, 1894, p. 515.
[46] Jordan: THE LANCET, Oct. 30th, 1897, p. 1098. Waitz: Deutsche Medicinische Wochenschrift, 1897, p. 178V. Mayo Robson: Brit. Med. Jour., April 4th, 1896, p. 845. Jackson Clarke: THE LANCET, May 9th, 1896, p. 1277.
[47] Marwendel: Langenbeck's Archiv, vol. lv., 1897, p. 387. Vortrag: Klinische Erfahrungen über den Werth des Murphy'schen Darmknopfes. [48] Langenbeck's Archiv, vol. lv., 1897.
[49] Experimentelle Untersuchungen mit dem Murphy-knopfe, Kronika Lekarska, No. 13. Jahresbericht der Medicin, 1896, p. 333.
[50] Transactions of the Royal Medical and Chirurgical Society, vol. lxx., p. 382.
[51] Der Murphy'schen Knopf und seine Anwendung. Langenbeck's Archiv, vol. lii., p. 301.
[52] Cit. from Wieslnger, Deutsche Medicinische Wochenschrift, 1897, p. 127V.
[53] Boari: Deutsche Medicinische Wochenschrift, 1897, 178V.
[54] Loc. cit.
[55] Contribution à l'étude de la Gastro-entérostomie avec le Bouton de Murphy (thèse pour le Doctorat en Médecine), cit. from Graff.
[56] Murphy gives laxatives from the first and ensures that the fæces remain liquid (THE LANCET, April 27th, 1895, p. 1046).
[57] Anwendung des Murphy'schen Knopfes bei der Operation des Carcinoms, Langenbeck's Archiv, 1896, p. 91-96.
[58] Annals of Surgery, 1896, p. 477.
[59] Cit. from Marwendel, Langenbeck's Archiv, vol. lv., 1897, p. 387.
[60] Deutsche Medicinische Wochenschrift, 1897, p. 224V.
[61] Un Nouveau Bouton Anastomotique pour les Opérations Intestinales, Bulletin de Mémoire de la Société de Chirurgie, p. 285, 746.
[62] Modificazioni al Metado Anastomotice di Murphy, La Clinica Chirurgia, 1897, cit. from Freudenberg from Deutsche Medicinische Wochenschrift, 1897, L. 163.
[63] THE LANCET, August 28th, 1897, p. 522.
[64] Deutsche Medicinische Wochenschrift, 1897, p. 224V.; Medicine, January, 1897.
[65] Boari: Deutsche Medicinische Wochenschrift, 1897, p. 169V., cit. Freudenberg.
[66] Frank: Deutsche Medicinische Wochenschrift, 1897.
[67] THE LANCET, May 9th, 1896, p. 1277.

For the methods about to be described perfection cannot be claimed, yet the suggestions given may in some circumstances be found applicable and may add to the wealth of resource already at the command of the surgeon. It had been intended to operate on dogs but the thick muscular and mucous coats which rather facilitate suturing experiments almost prohibit those by a method of invagination. The same objection applies to the cat.[68] In the rabbit the relative conditions more resemble the human though, of course, the intestine is very small. On account of the thinness of the intestinal wall the rabbit cannot overcome any resistance and is very liable to ileus.[69] The upper part of the jejunum is very friable and readily tears. Any operation successful in such an intestine will certainly be much more so in the human subject.[70] Both of the following methods utilise the invagination principle. The first has the minimum of stitching while the second has none at all. Clamping of the intestine previously to union was not resorted to.

I. (*A*) *Treatment of the proximal end of the intestine.* (It is essential to differentiate between the proximal and distal extremities, as in two cases death ensued from mistaking the distal for the proximal).—Into the proximal end of the gut is inserted a short, light, decalcified bone tube (Fig. 1) of a diameter somewhat less than that of the intestine in its normal condition. The use of too large a tube adds difficulty to the technique and perpetuates a distension of the gut which is detrimental. In the case of the rabbit the length of the bone tube employed was about twice that of the diameter, but for operations on a larger gut the tube can be

FIG. 2.

FIG. 1.

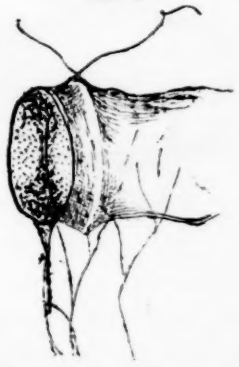


greatly shortened so that the length does not exceed the diameter. The thickness of the tube need only be sufficient to give it stability and allow of the grooving. Rubber, potato, or turnip tubing might of course answer the purpose equally as well as decalcified bone. The tube is then fixed in position by ligaturing the intestine firmly into groove A which is not so deep as B (Fig. 2).

FIG. 3

B. The treatment of the distal end.—About from one-quarter of an inch to one-third of an inch (in the rabbit not more than one-quarter of an inch) from the edge, at a point opposite the mesenteric attachment the two ends of a loop of silkworm gut (threaded on a needle) or of silver wire are passed through the entire thickness of the bowel, as in Fig. 3. The loop is then drawn within the lumen of the gut

FIG. 4.

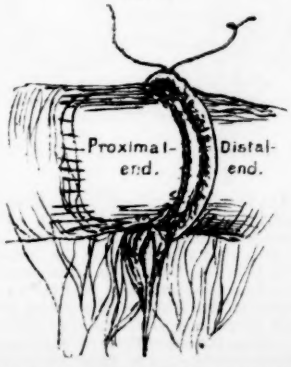


and is made to distend by a backward push the wall of the intestine, as shown in Fig. 4. When so distended the part of the intestine outside the loop allows itself to be easily involuted into the intestine through the distending ring

FIG. 5.

(Fig. 5). Into this gut-lined ring is next inserted (as in Fig. 6) the proximal end till the wire or silkworm gut comes to lie round the groove B (Fig. 1) in the bone tube. The wire or gut is now firmly tied. By this means the invagi-

FIG. 6.

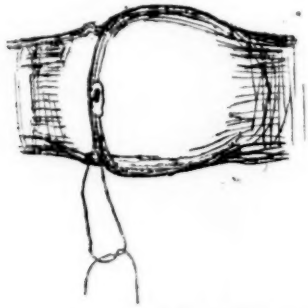


nated layer of the distal end together with the layer covering the bone tube are firmly compresed into the groove. The ligature is then cut short and the small opening through

[68] Reichel: Münchener Medicinische Wochenschrift, 1890, p. 196.
[69] Bier: Langenbeck's Archiv, Band xlix., 1895, p. 759.
[70] Ibid., p. 741.

which it passed is closed by a purse-string suture as in Fig. 7. The mesentery is then united and the loop is returned to the abdomen.

FIG. 7.

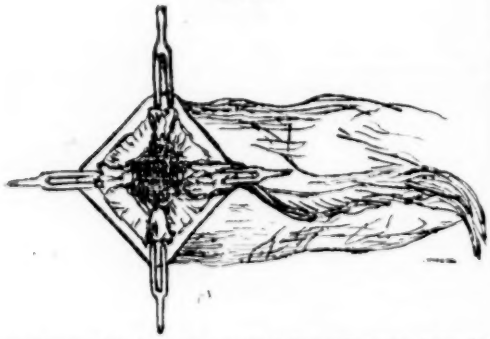


II.—This is a modification of the first method. The treatment of the proximal extremity is the same as in that method. The difference lies in the employment, instead of wire or gut, of a round rubber ring which is inserted into the distal end about from one-quarter of an inch to one-half of an inch from its free margin (Fig. 8). The ring should be of

FIG. 8.

such a diameter as to fit closely into the groove B (Fig. 1) of the naked bone tube and of sufficient strength to grasp it firmly when there are two layers of intestine interposed. The free one-quarter of an inch to one-half of an inch of intestine is then invaginated into the ring and is kept in position by means of three or four hooks (Fig. 9). These

FIG. 9.

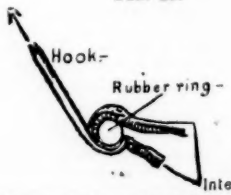


are also used to keep the gut-lined ring sufficiently distended while the proximal end is being inserted. The hooks are removed when the insertion has proceeded far enough to allow the contracting ring to press the intestine into the groove B (Fig. 1) in the bone tube. The mesentery is then united and the loop of intestine is returned to the abdomen. To avoid injury of the intestine the hooks, though sharply pointed, must curve only sufficiently to surround the ring and perforate alone the inner layer of bowel as illustrated in Fig. 10. When dealing with a larger bowel than a rabbit's blunt hooks would answer the purpose.

The details of the operations which I performed on each rabbit are as follows. In all cases full-sized rabbits were employed and were operated upon under ether. The wounds in each case healed by first intention. In one or two abdominal herniæ developed. None of them were "nursed" and they were allowed to take their usual food immediately after operation.

No. 1.—Laparotomy with section of the loop of the small intestine and then enterorrhaphy by the first method were performed on July 1st, 1898. The animal died on the next day. Post mortem the abdomen was greatly distended, due to distention of the stomach and of about 24 centimetres of intestine to the seat of junction. It was found that the

FIG. 10.



lower or distal end of the gut had been in error invaginated into the upper and the minute bone tube was displaced laterally while its lumen was stopped with intestinal contents. On cutting out the junction and testing with a stream of water under slight pressure the union was found not to leak.

No. 2.—This was a laparotomy with section and junction by the first method performed on July 4th, 1898. The appendix was injured by mistake and part had to be excised. The stump would not close satisfactorily so it was stitched to the abdominal wound. This animal had previously (on May 28th) had a thyroidectomy performed on it without showing any symptoms of strumipriva. It was the only rabbit available at the time. On July 8th the animal was found dead. Post-mortem examination showed the stomach and intestines to be generally distended. There were no general adhesions, but slight adhesions round the junction. There was no obstruction and no leakage with the water test. The bone tube was still in position. The stump of the appendix was free in the abdominal cavity and death was obviously due to this.

No. 3.—(*a*) On July 9th, 1898, a laparotomy operation by the first method was performed. (*b*) On August 2nd, 1898, the abdomen was reopened (abdominal hernia). The peritoneum was healthy. The operation was by the second method. The animal died from excess of ether during closure of the abdomen. A post-mortem examination was made on the same day. The first junction (the operation of July 9th), 40 centimetres from the pylorus, had healed and was adherent to the intestine above and below—the whole forming an S-shaped loop. (Coccidiosis of the liver with hydatids of the mesentery were present.)

No. 4.—(*a*) This was a laparotomy by the first method performed on July 9th, 1898. The intestine was friable. Two Lembert sutures had to be put in as the gut tore while the ligature was being adjusted (these sutures passed from the distal to the proximal intestine and brought a covering of peritoneum over the rather large perforation). (*b*) On August 5th the abdomen was reopened. The peritoneum was healthy. The second method was employed and was performed with the greatest ease. On August 7th the animal died. Post mortem there was no peritonitis, but the stomach and intestine were distended. The first junction, 40 centimetres from the pylorus, was one of perfect union. There were light adhesions to the intestine on one side only. The second junction was higher up. Death was due to the lower end being invaginated by mistake into the upper.

No. 5.—(*a*) This was a laparotomy operation by the second method carried out on August 5th, 1898. The intestine (evidently the upper part of the jejunum as the contents were semi-digested only) was very friable; it repeatedly tore and the junction had to be cut out several times as the bone tube was slightly too large. The junction was eventually performed with the greatest ease when a smaller tube was used. (*b*) On August 25th the abdomen was reopened (abdominal hernia was present). The peritoneum was healthy. The second method was easily performed for the second time. On Oct. 1st the animal was killed. The following report of the post-mortem condition was kindly sent to me by Dr. Ludwig Pick, Director of the

"Laboratorium der Professor Dr. Landau'schen Frauenklinik," Berlin: "The seat of the first operation was situated one and a half inches below that of the second. While the place of the first operation was found with difficulty and showed only a very slight constriction the place of the second felt more solid, seemed retracted, and was surrounded by various adhesions with visceral and parietal peritoneum. The gut was permeable at both places equally well without a sign of stenosis."

From the above-mentioned experiments I would draw attention to the danger of mistaking the distal for the proximal end in all cases where the invagination method is employed. A fatal result following this mistake has been observed by Jessett,[71] Robinson,[72] and Senn in their experiments on animals. The direction of the intestinal current before performing such an operation should always be clearly observed.

It is claimed for the method I have described that it is easy and rapid while the requisite apparatus is of the simplest and lightest description. There is the minimum of handling of the intestine and so therefore the minimum of injury. The intestine of the rabbit is so delicate that the slightest tension or pressure ruptures the blood-vessels. Operations on them, if they are to be successfully performed, require special attention to technique, while the extra freedom which might be permissible on the larger and stronger human intestine would make the adoption of this method in the latter case so much the easier.[73] A "safety" stitch over the junction is probably more dangerous than otherwise, and in the rabbit would only lead to perforation and escape of intestinal contents. The progressive nature of the pressure in the second method between the two serous surfaces at the seat of union is a further advantage. The elastic ring ensures perfect uniformity of pressure and prevents any tendency to hæmorrhage which, according to Greig Smith,[74] is excessive where the bowel is congested. Hæmorrhage after simple stitching must cause at least microscopic separation of the two surfaces to be united.

The greatest objection to all methods depending on gangrene for removal of the means of union is stated to be the liability of the gangrene to extend outwards beyond the control of the apparatus into a dangerous region. This will be all the more likely to occur when the intestine has been subjected to pressure or where the integrity of the serous surfaces has been impaired by the addition of so-called safety sutures. The bone tube being a perfect cylinder occupies the minimum of space, ensuring at the same time the maximum of lumen through which the delayed intestinal contents can readily pass into the bowel beyond. As the tube is covered with intestine it is practically not in contact with the healing line and certainly cannot by its presence influence that process at all. There is no foreign body (in the second method) other than a flexible rubber ring to be voided, and this cannot possibly give rise to obstruction, nor should trouble follow the use of silkworm gut or silver wire as in the first method. Neither operation has been utilised to affect a union of intestine with stomach, but doubtless either could be readily adapted to the special requirements of such a case.

My best thanks are due to Professor Hermann Munk, Director of the Physiological Laboratory in the Königliche Thierarzenei Hochschule of Berlin, for permission and facilities to carry out these investigations. The second operation in the last rabbit was performed in the pathological section of the laboratory of Professor Landau at his request.

Glasgow.

[71] Surgical Diseases of the Stomach.
[72] Loc. cit.
[73] Bier: loc. cit.
[74] Abdominal Surgery, p. 411.

TAUNTON AND SOMERSET HOSPITAL.—The annual meeting of this institution was held on Feb. 9th, under the presidency of Mr. F. H. Cheetham. The financial statement showed that the income during the year amounted to £6174, against £3578 in 1897, and the total expenditure was £4310, against £4202 in the previous year. The medical report stated that 828 in-patients had been admitted, against 783 in 1897, the daily average in the hospital being 81. The out-patients numbered 3968, against 4167 in the preceding year. Colonel Welby, M.P., was elected president for the ensuing year.

THE OPERATIVE TREATMENT OF TYPHOID PERFORATION OF THE INTESTINE,

WITH A REPORT OF THREE CASES; ONE SUCCESSFUL.

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OPERATION for the relief of typhoid perforation of the intestine was first proposed by Leyden[1] in 1884 and was carried out by Mikulicz[2] in the same year, although the latter only made a diagnosis of typhoid fever from the conditions which he found after he had opened the abdomen. The first surgeon who operated for a perforation previously diagnosed was Lücke[3] in 1885. A considerable number of cases have now been reported and on the whole we may say that the results have improved during recent years. From time to time the published cases have been collected and analysed by Van Hook,[4] Abbe,[5] Monod and Vanverts,[6] Finney,[7] Gesselewitsch and Wanach,[8] and Keen.[9] Keen in January, 1898, collected 83 cases with 16 recoveries. To his list I am able to add three cases of my own and 17 published by others, giving a total of 103 cases with 21 recoveries. My own cases are as follows.

CASE 1.—A man, aged 37 years, was admitted to the Monsall Fever Hospital, Manchester, at midnight on Nov. 15th, 1898. The history given was that the illness had commenced on Nov. 5th with headache and pains in the limbs, followed on the next day by slight diarrhœa. When admitted the patient was suffering from an apparently mild attack of enteric fever. The temperature was 102° F.; the tongue was moist and coated, the abdomen was fairly soft, there were a few rose-spots, the spleen was a little enlarged to percussion but was not felt, and numerous rhonchi were to be heard on auscultation of the lungs. Widal's test gave a positive reaction. On the next day (Nov. 16th) at 8 P.M. the patient complained of sharp shooting pains below and to the right of the umbilicus; two hours later the temperature rose to 104·6°. On the 17th at 11 A.M. the patient vomited once. The abdomen was hard and distended, the tongue was dry, and the bowels were constipated. The pulse was 96 per minute, regular, of good volume, but slightly dicrotic. At 1 P.M. the liver dulness had disappeared and perforation was diagnosed. Dr. Marsden, the resident medical officer, therefore sent for me to see the patient with a view to operation.

On Nov. 17th at 6 P.M., probably 22 hours after the onset of the perforation, I proceeded to operate. An incision four inches long in the right semilunar line was made. On opening the peritoneum there was an escape of gas, followed by a little feculent fluid; the intestines were greatly distended. It was necessary to eventrate a considerable portion of the small intestine before the perforation could be discovered. The perforation was about a quarter of an inch in length and was situated opposite the mesenteric attachment in a loop of ileum lying near the pelvic brim; its distance from the cæcum was not ascertained. The neighbouring coils of intestine were covered by a fair amount of dirty fibrinous lymph. There was evidence of several other ulcers in the intestine; the edges of the perforation were turned inwards and the peritoneal surfaces were united by a continuous silk suture introduced by an ordinary sewing-needle. Considerable trouble was experienced in returning the intestines to the abdomen because of their great distension. The eventrated intestines and also the peritoneal cavity were irrigated freely with hot saline solution. A rubber drainage-tube was introduced, passing down towards the pelvis, and the rest of the wound was sutured. The operation lasted

[1] Deutsche Medicinische Wochenschrift, 1884, pp. 258–262.
[2] Volkmann's Sammlung Klinischer Vorträge, No. 262, Chirurgie No. 83.
[3] Deutsche Zeitschrift für Chirurgie, 1887, Band xxv., p. 1.
[4] Medical News, 1891, vol. lix., pp. 591–595.
[5] Medical Record, 1896, vol. xlvii., p. 1.
[6] Revue de Chirurgie, 1897, tome xvii., pp. 169–192.
[7] Annals of Surgery, 1897, vol. xxv., pp. 231–269.
[8] Mittellungen aus den Grenzgebieten der Medicin und Chirurgie, 1897, Band ii., pp. 32–66.
[9] The Surgical Complications and Sequels of Typhoid Fever, 1898, pp. 212–243.

50 minutes. On the 18th and 19th the patient was fairly comfortable. The temperature varied between 98·4° and 99·8°; the discharge from the wound consisted of a little thin, yellow, slightly opalescent serum. On the 20th the abdomen was greatly distended, the tongue was dry, and there were retching and slight sickness. Some relief was obtained from an enema containing turpentine. From this date the patient progressed favourably until Dec. 2nd when there was a relapse of the fever which lasted for three weeks. The drainage-tube was removed on Nov. 30th and gauze-packing was substituted. The wound was healed on Dec. 26th.

The discharge throughout had been small in quantity. After the subsidence of the relapse the patient progressed rapidly to complete recovery. He was discharged from hospital on Jan. 20th, 1899, 64 days after the operation. He was shown at a meeting of the Manchester Medical Society on Feb. 1st and was then perfectly well with the exception of a slight tendency to bulging of the abdominal wall at the seat of operation.

CASE 2.—The patient was a male, aged 17 years, whose illness commenced on Oct. 22nd, 1898, with headache, constipation, and dizziness. Four days later he had to lay up because of abdominal pain and cough. On admission to Monsall Fever Hospital he was suffering from typhoid fever of a severe type. The abdomen was full and firm, the tongue was dry and coated, the pulse was 96, the temperature was 103·4° F., the spleen was palpable, and there was bronchitis. Until Nov. 19th there was no marked change in the patient's condition. At 4 P.M. on that day he vomited once; the abdomen was not distended but it was fairly firm and liver dulness was present. At 9 P.M. there was retching, the abdomen was distended, and there was resonance over the liver. At 11 P.M. the abdomen was more distended and was very tender and there was hiccough. The pulse was 140 per minute.

On Nov. 20th at 10 A.M., 18 hours after perforation, an incision four inches long was made in the right semilunar line. There were gas and fæces in the abdomen; the intestines were not much distended. The perforation was found at once in a loop of ileum passing from the iliac fossa into the pelvis; it was situated near the pelvic brim. An attempt was made to close the opening by a continuous suture, but the bowel-wall was so rotten that some of the loops cut out. With some difficulty the opening was closed by interrupted Lembert's sutures, its edges being turned inwards. The abdomen was washed out with hot saline solution, a drainage-tube from the wound into the pelvis was inserted, and the rest of the wound was sutured. The operation lasted 40 minutes.

After the operation the patient was much collapsed and about half an hour afterwards two pints of saline fluid were infused into the median basilic vein. He rallied somewhat for a time, but he died at 7.15 P.M. on the same day, eight and a half hours after the completion of the operation.

The necropsy showed general peritonitis, six or seven other ulcers in the ileum, and the perforation to be situated nine inches from the cæcum. The sutures were sound and the perforation was sealed.

CASE 3.—The patient was a man, aged 22 years. Illness commenced on Nov. 1st, 1898, with headache, diarrhœa, and shivering. He was admitted to Monsall Fever Hospital on Nov. 10th suffering from a severe attack of typhoid fever; he was very restless, the tongue was dry and dirty, there were rose-spots, the abdomen was tense, the spleen was felt on palpation, and there were diarrhœa and vomiting. On the 20th at 2 A.M. there were stabbing pains in the abdomen. At 1 P.M. the abdomen was distended, firm, painful, and tender; the face was drawn and pale; and there was a tympanitic area over the left lobe of the liver. At 6 P.M. liver dulness was absent. At 10.15 P.M. there was retching.

On Nov. 20th at 11.30 P.M., 19 hours after perforation, an incision in the right semilunar line four inches long was made. There were gas and about a pint of feculent fluid in the abdomen; the intestines were not much distended. The perforation was easily found in a loop of ileum situated near the pelvic brim; its edges were turned inwards and interrupted Lembert's sutures were applied. The abdomen was well flushed out with warm salt solution, a drainage-tube was inserted into the pelvis, and the rest of the wound was sutured. The operation lasted 45 minutes. The patient rallied for a time, but then sank and died on Nov. 22nd at 11.50 P.M.

At the necropsy the perforation was seen to be about nine inches from the ileo-cæcal valve. The sutures were sound. There was peritonitis which was limited to the pelvis and the right iliac region; the ascending colon and the right half of the transverse colon were distended, but the rest of the colon and the sigmoid flexure were small, empty, and contracted, with apparently a kink at the middle of the transverse colon. There was a large number of typhoid ulcers.

I have to thank Dr. Marsden for the notes of the above cases with the exception of those relating to the operations. The successful result in the first case was due just as much to his diagnostic skill and to his careful and judicious after-treatment as to the operation which was performed. In the second case it is clear that there could be but little hope of a favourable issue. The third case is interesting because although unsuccessful it shows that the peritonitis following perforation may be limited by operation even after the escape of a large amount of fæcal matter. The cause of the kinking of the transverse colon is uncertain. In Dr. Marsden's opinion it had nothing to do with the operation, and, but for its occurrence, the man would have had a fair chance of recovery.

Perforation from the point of view of operation.—From the statistics given by Fitz,[10] it would appear that intestinal perforation is the cause of death in about 6·58 per cent. of fatal cases of typhoid fever. The same writer states that perforation is most common during the second, third, and fourth weeks of the disease, the largest number of cases occurring during the third week. In the great majority of cases the perforation is situated in the ileum within two feet of the ileo-cæcal valve. In a smaller number of cases it occurs in the appendix, the cæcum, the colon, or higher up in the small intestine. In 29 out of 167 cases collected by Fitz more than one perforation was present; in 10 cases three or more ulcers had given way.

It would appear that there is no definite relation between the severity of the individual attack of fever and the occurrence of perforation. Not infrequently it is noted that perforation occurs during an attack which is apparently following a mild course, and it is in such cases that operative interference is most likely to be attended with success.

That perforation does occasionally lead to localised peritonitis, the general peritoneal cavity being shut off by adhesions, is certain, although the cases in which it has been proved beyond doubt are few in number. One such case was recently reported by Elsner.[11] The patient died from hæmorrhage some days after there had been symptoms of perforation, and at the necropsy localised peritonitis around a perforated ulcer was found, the peritoneal cavity being completely shut off. In Watson's successful operation case[12] the peritonitis was strictly limited by adhesion of the perforation to the anterior abdominal wall. (In all the other successful cases it would appear that peritonitis had spread more or less widely.) Probably in some of the localised cases peritonitis occurs first from extension of inflammation through an ulcerated but unperforated intestinal wall leading to the formation of adhesions, and perforation takes place subsequently. In the great majority of cases, however, perforation leads to a more or less diffuse peritonitis, and under such circumstances a fatal issue is almost, if not quite, inevitable. Dr. J. F. R. Gairdner[13] has collected from the clinical and pathological records of Belvidere Fever Hospital, Glasgow, 47 cases of peritonitis occurring in typhoid fever and has studied them from the point of view of operative interference. As a result of his investigation he has come to the conclusion that in 49 per cent. of the cases laparotomy would have offered a fair chance of recovery, and that in 19 per cent. of the whole number the chance would have been distinctly good. Dr. S. Phillips[14] of the London Fever Hospital, speaking at a discussion at the Royal Medical and Chirurgical Society, said that he recognised two types of perforation cases: 1. Those with tympanitic abdomen; in such cases leakage is largely prevented owing to the distension of the intestines and operation is likely to be successful. 2. Those with doughy abdomen and no striking symptoms, the patients dying from asthenia; under such circumstances extravasation occurs freely and the conditions are unfavourable to operative interference. These observations I regard as of very great value; my successful case was clearly of the first

[10] Transactions of the Association of American Physicians, 1891, vol. vi., pp. 200-215.
[11] New York Medical Journal, 1892, vol. lv., p. 400.
[12] Boston Medical and Surgical Journal, 1896, vol. cxxxiv., p. 317.
[13] Glasgow Medical Journal, 1897, vol. xlvii., New Series, pp. 97-116.
[14] THE LANCET, Jan. 30th, 1897, p. 313.

type, whilst my unsuccessful cases approached more nearly to the second type. Distension of the intestines must therefore be regarded, contrary to the statements of some writers, as rather improving than diminishing the chances of a successful operation.

Objections to the operation.—The chief objections which have been advanced are (1) the difficulties in early diagnosis of perforation, (2) the bad general condition of the patient, (3) difficulties in finding the opening, (4) the diseased condition of the walls of the gut, (5) the occasional occurrence of multiple perforations, (6) the presence of a grave peritoneal lesion, and (7) that some cases diagnosed as perforation have recovered. These objections are more apparent than real and in almost every case are sufficiently answered by pointing to the results of operation.

Into the question of diagnosis I do not propose to enter. Of the importance of early recognition of perforation there can be no doubt and hence a very great deal depends upon the skill of the physician in charge of the patient. In fever hospitals, where a large number of typhoid patients are treated, it will usually be possible to arrive at a definite opinion within 12 hours, about which time, as statistics show, operation can be undertaken with the greatest prospect of success.

That other conditions may produce symptoms very similar to those of perforation is well known and in at least three recorded cases the operation has been performed under a misapprehension. Mr. Damer Harrisson[15] opened the abdomen in one case and found that the symptoms were due to kinking of the small intestine. Mr. Monier-Williams and Mr. Marmaduke Sheild[16] found perforation of the gall-bladder, and Dr. Herringham and Mr. Bowlby[17] have recorded a case in which nothing more than scybala in the colon was found at the time of operation, the symptoms probably being due to constipation. All these three cases recovered. Gesselewitsch and Wanach[18] refer to an interesting case under Chrostowski's care in which similar symptoms were caused by rupture of two softened splenic infarcts. Some of these conditions and others of similar nature will in all probability account for most of the recorded cases of recovery without operation in supposed perforations of intestinal ulcers.

Details of operation.—The best rule to follow in operating upon these cases appears to be that given by Finney—"Speed and dexterity should be cultivated, but never at the expense of thoroughness." Most writers upon this subject have advocated a median incision below the umbilicus. In my own cases I made a right lateral incision and found that it gave free access to the chief seat of trouble and was convenient in every way. Should it fall to my lot to operate upon any more cases I shall certainly adopt the same procedure. When the abdomen is opened there will probably be escape of gas and more or less feculent fluid. The intestines will be congested and in some cases greatly distended. If lymph be present on the intestinal walls the perforation will probably be in the immediate neighbourhood. In each of my own cases I found the perforation in a loop of the ileum lying in the iliac fossa and passing down towards the pelvis and, except in the first case where the intestines were greatly distended, there was no difficulty whatever in localising it. If difficulty be encountered it will be best to find the cæcum and to attempt to trace the ileum from it. During this stage of the operation eventration of the intestine should be avoided as far as possible. If no perforation exist in the ileum an examination of the appendix, the cæcum, and the colon should be made.

The best method of closing the perforation is to turn inwards the edges and to unite the peritoneal coats by interrupted Lembert's or Halstead's mattress sutures. This can usually be done without much interference with the lumen of the bowel. A single row of sutures is sufficient in most cases, for post-mortem records of many unsuccessful cases have shown that there is seldom any subsequent leakage. Frequently it has been demonstrated that a perforation has become sealed even when only a few hours have elapsed between the completion of the operation and the death of the patient. Paring of the edges of the perforation is altogether unnecessary; as Keen says, it is both a waste of time and tissue. The same remark applies to excision of the perforated ulcer, a procedure which has been carried out in some cases. In my first case I used a continuous suture of fine silk and I attempted the same in my second case, but owing to the friable condition of the bowel-wall some of the loops cut out. Interrupted sutures are less liable to tear the bowel and are more easily manipulated.

When the wall of the bowel is in bad condition or when there are several perforations near together so that simple suture is insufficient two courses are open—resection of a portion of bowel or the formation of an artificial anus. The former has been carried out in nine cases, three of which were successful (Trojanow, Hill, and Ferraresi). In Mr. Allingham's case[29] the bowel-wall was so rotten that it was brought up to the abdominal wound and stitched there, and Mr. J. E. Thompson[30] adopted the same procedure in his second case. As a general rule, considering that cases in which it is not possible to close the opening by sutures will be in a bad general condition, I think that the formation of an artificial anus is a less severe procedure than resection. In seven cases the records state that the perforation was not found at the time of operation. Strange to say, recovery followed in three of these cases (Dandridge, Murphy, and J. B. Deaver).

The interests of the patient will be best consulted by not spending any great length of time in looking for other perforations. Probably a second perforation, if present, will be at no great distance from the first and consequently it is advisable to be content with an examination of the neighbouring portions of bowel. Usually during the operation other ulcers will be seen through the intestinal wall; if these be nearly perforated it is advisable to invaginate them and to suture the serous coat over them.

Finney strongly recommends the cleansing of the peritoneum by wiping with pledgets of gauze. He says that during irrigation there is a very real danger of carrying extravasated material into parts of the abdomen previously uninfected. Most writers, however, recommend free irrigation with salt solution or some mild antiseptic and this would appear to have given the best results. Of the successful cases on record the mode of dealing with the peritoneal cavity is stated in 15. Of these 12 were subjected to irrigation and three to wiping with gauze.

Drainage should in my opinion always be adopted in these cases as it does away with the risk of any re-accumulation in the peritoneal cavity. Of 18 successful cases in which there is information upon this point the wound was completely closed in four (Mikulicz, Wagner, Murphy, and Handford and Anderson). In the remaining 14 cases the wound was either left entirely open or drainage was provided by means of a tube or by strips of gauze.

Results.—The most complete list of cases of this operation hitherto published is that compiled by Dr. Westcott and published by Dr. Keen in his recent work. The table was compiled up to January, 1898, and includes 83 cases in which there is no reasonable doubt as to the diagnosis. Of this number 16 cases recovered. To Keen's list I am able to add three fatal cases published before 1898, but of which I know nothing more than the result, 14 cases which have been recorded subsequently, and my own three cases. The additional cases are as follows. J. H. Nicholas[21]: Two cases reported to the Royal Academy of Medicine in Ireland, 1889; both fatal. Podres and Obalinski, cited by Gesselewitsch and Wanach[22]: One fatal case. Gesselewitsch[23]: One case; operation immediately after the onset of symptoms of general peritonitis; perforation sutured; death after 43 hours. J. B. Deaver[24]: A male, aged 27 years; perforation during the second week; operation within 24 hours; free gas in the abdomen; no attempt made to localise the perforation owing to great distension of intestines; irrigation and drainage; recovery; Widal's reaction obtained. H. C. Deaver (reported by J. B. Deaver)[25]: A male, aged 36 years; perforation in the third week; operation after 36 hours; death. Burrell and Bottomley[26]: Two cases—one recovery and one death. (I have been unable to consult the original reference and therefore know nothing further about these cases.) Handford and Anderson (Nottingham)[27]: A male, aged 27 years; perforation on the thirty-third day of a mild attack; operation after 22½ hours; perforation sutured; peritoneum cleaned

[15] Brit. Med. Jour., vol. ii., 1894, p. 865.
[16] THE LANCET, March 2nd, 1895, p. 534.
[17] Transactions of the Royal Medical and Chirurgical Society, 1897, vol. lxxx., pp. 127-130.
[18] Loc. cit.
[19] Brit. Med. Jour., vol. i., 1894, p. 578.
[20] Medical Chronicle, 1895, vol. iii., New Series, p. 401.
[21] THE LANCET, August 3rd, 1889, p. 219.
[22] Loc. cit.
[23] St. Petersburger Medicinische Wochenschrift, 1898, No. 3. (Centralblatt für Chirurgie, 1898, No. 19.)
[24] American Journal of the Medical Sciences, 1898, vol. cxv., pp. 189-192.
[25] Loc. cit.
[26] Medical and Surgical Reports, Boston City Hospital, 1898, p. 126.
[27] Brit. Med. Jour., vol. ii., 1898, p. 220.

by sponges; wound closed without drainage; recovery. Pickering Pick (reported by Rolleston[28]): A male, aged 21 years; typhoid perforation of the appendix; the appendix removed; death on the second day. A case mentioned by Dr. Goodall in the discussion upon Mr. Pick's case at the Clinical Society of London: A girl, aged eight years; perforation during relapse; sutured; death after four days. J. B. Deaver[29]: A female, aged 23 years; perforation on the twenty-first day; operation 15 or 16 hours afterwards; perforation sutured; death after two and a half days. Woodward[30]: A male, aged 18 years; perforation at the end of the second week; operation after nine and a half hours; perforation sutured; the patient recovered from the operation but died nine days later from the typhoid fever; at the necropsy the peritoneum was found uninflamed with the exception of local dry peritonitis around the seat of perforation, Cushing[31]: Three cases. (1) A male, aged nine years; perforation at the end of the second week; sutured; abdomen opened twice subsequently, once for a supposed second perforation and once for kinking of the intestine from adhesions; recovery. (2) A male, aged 18 years,; perforation in the fifth week; sutured; death in four hours. (3) A male, aged 31 years; perforation at the end of the fourth week; sutured; death after eight hours. In a fourth case no perforation was discovered at the time of operation; the patient recovered. Bigger and Campbell[32] (a case reported to the Ulster Medical Society): A male, aged 36 years; perforation during the third week; operation after 10½ hours; perforation closed by Lembert's sutures; death on the fourth day. Altogether we have 103 cases with 21 recoveries. The successful cases on record are as follows: Mikulicz (1884), Wagner (1889), Van Hook (1891), Abbe, Netschajew and Trojanow, Dandridge, Ferraresi (1894), Hill, Murphy, Price (two cases), Watson, Sifton (1895), Finney, Brunton and Bowlby (1896), Panton (1897), Deaver, Burrell and Bottomley, Handford and Anderson, and Cushing (1898). In England, including my own cases but excluding the doubtful case mentioned by Greig Smith,[33] 13 operations are now on record. My own case is the third reported in this country in which the result has been successful.

Conditions which influence the results of operation.—The time between perforation and operation is a most important factor in determining the success of the operation. In 69 of the 103 cases we have information upon this point, and by adding the additional cases to the analysis already made by Keen we arrive at the following results:—

Time between perforation and operation.	No. of cases.	Recoveries.	Recovery-rate.
Under 12 hours	17	4	23·5 per cent.
From 12 to 24 hours	26	9	34·6 ,,
,, 24 to 48 ,,	14	1	7·1 ,,
,, 2 to 3 days	6	2	33·3 ,,
,, 3 to 4 ,,	4	0	0·0 ,,
5 days	1	0	0·0 ,,
38 ,,	1	0	0·0 ,,

It is advisable to defer operation until the primary shock which usually accompanies perforation and which as a rule lasts for a few hours has somewhat passed off. The best results have been obtained in cases operated on after an interval of from 12 to 24 hours, although no surgeon would think of waiting for 12 hours provided that other circumstances were favourable. Statistics show that in cases operated upon within 24 hours the recovery-rate has been about 30 per cent., but at the same time we should remember that in all probability some unsuccessful cases have not been reported. After the elapse of 24 hours the chances of a favourable result are very small. Also when marked symptoms of collapse have existed at the time of operation the results have been proportionately bad.

The character of the primary attack of typhoid fever influences greatly the prognosis in these cases, the chances of success being much greater when perforation occurs during the course of a mild attack than when the fever is of a severe type. I find that of the successful cases the disease was reported to be of mild character in five, whilst in two only was it distinctly stated to be of a severe nature. Although I do not think it advisable to limit the operation to perforation occurring in the course of mild or moderately severe cases, yet we must recognise that up to the present time there has been but a small amount of success when perforation has occurred during the height of a severe attack.

An analysis of the cases shows that on the whole the chances of success are rather greater when perforation occurs at a late stage of the disease. We have information upon this point in 76 cases.

	Number of cases.	Number of recoveries.
Perforation in course of 1st week	3	2
,, ,, 2nd ,,	16	3
,, ,, 3rd ,,	33	6
,, ,, 4th ,,	5	1
,, ,, 5th ,,	5	1
,, ,, 6th ,,	1	1
,, ,, 7th ,,	2	1
,, during convalescence	3	2
,, ,, relapse	6	1
,, ,, convalescence from relapse	2	1

From this analysis it would appear that there is some hope of a successful result at all stages of the fever and that it is not advisable to limit the operative procedure to any one stage. The amount of vitality which has been exhibited by some of the successful cases is astonishing. Thus one of Finney's cases, subsequently to the operation, had two relapses of the fever—one of great severity—suppurative middle-ear disease, pleurisy, femoral thrombosis, and neuritis of both legs, and yet made a good recovery. Cushing's successful case underwent another operation for a supposed second perforation and a third operation for intestinal obstruction, all within a fortnight. My own case came safely through a relapse of three weeks' duration.

Operation for typhoid perforation of the intestine has already given a gratifying amount of success. If undertaken within 24 hours of the giving way of the bowel we may confidently expect a recovery-rate of from 25 to 30 per cent., and when we consider that without operation the condition is almost inevitably fatal there can no longer be any doubt as to the advisability of the procedure.

Manchester.

[28] Transactions of the Clinical Society of London, 1898, vol. xxi., p. 234. [29] Annals of Surgery, 1898, vol. xxviii., p. 144.
[30] Boston Medical and Surgical Journal, 1898, vol. cxxxix., p. 317.
[31] Johns Hopkins Hospital Bulletin, November, 1898 (Brit. Med. Jour., Epit., Feb. 4th, 1899.)
[32] Brit. Med. Jour., vol. i., 1899, p. 89.
[33] Abdominal Surgery, fourth edition, p. 776.

CASES OF HÆMORRHAGE CAUSING GREAT DISTENSION OF THE MALE URINARY BLADDER.

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SOME instances of this kind that happen to have recently come together offer material for remark relative to the prompt and direct action which the bleeding usually requires. Cases of great distension of the bladder from this cause, independently of those incidental to malignant growths, are not very common and generally occur in bladders which are muscularly weakened either as the result of a chronic stricture or of an obstructing prostate. The forcing downwards exercised by the normal viscus is the great safeguard against retrograde hæmorrhage following certain operations upon these parts. I cannot remember seeing a severe case of bleeding after an internal urethrotomy for stricture, for instance, where the patient was in possession of the full power of voluntarily emptying his bladder completely. When atonied or weakened the latter is liable to yield under the pressure of bleeding proceeding from a lesion in front of it and then serious and exquisitely painful symptoms may be the result. In some instances the distension thus produced will assume the size of the gravid uterus at about the seventh month. The difficulty in dealing with such a condition is added to by the fact that in the instances referred to the urethra is more or less obstructed. The following cases which are briefly narrated seem to present some points of interest.

CASE 1.—The patient was a man, aged 37 years, the subject of chronic stricture in the deep urethra, for which an internal urethrotomy was performed three years previously and from which he derived so much benefit that he afterwards neglected to use a bougie regularly. Then the stricture began to re-contract and eventually it was found impossible to pass even the smallest instrument. On June 21st,

1898, an attempt was made to dilate under an anæsthetic and some progress was made, bougies up to No. 4 entering without much difficulty or bleeding. I saw the patient on the following day and found that he had passed only a small amount of blood-stained urine since and that his bladder was largely distended, reaching to a level with the umbilicus. He was in great pain and was sweating profusely. He was again placed under an anæsthetic and a small catheter was passed but very little urine escaped. As it was obvious that clotted blood formed the main contents of the bladder and that it must be removed without delay the process of stricture dilatation was at once further proceeded with until a full-sized Lister's bougie could be passed. A large catheter-evacuator was then substituted and a mass of clotted blood was withdrawn by the aspirator as used for litholapaxy. In this way the bladder was soon cleared. A full-sized rubber catheter was then tied in and the patient speedily recovered. Though the full calibre of the urethra is restored the partially atonic condition of the bladder continues, as there is a constant residuum of six ounces or so unless the catheter is used—the result of a neglected stricture though in a young man. It would not have been possible to evacute these clots in any other way except by opening the bladder either in front or from the perineum.

CASE 2.—A man, aged 72 years, with a large prostate for which he used a catheter was seen by me in June, 1898, in consequence of hæmorrhage into the bladder, the latter when seen being enormously distended. Some blood-stained urine had been drawn off, but without lessening the size of the viscus. Several large-eyed catheters were ineffectually tried. As the bladder was evidently full of blood-clots the patient was placed under ether and the evacuating catheter and powerful aspirator were used without avail. As it looked as if it would be necessary to open the bladder I first passed a smooth-bladed lithotrite and broke up the mass of clots just as if it were a stone. In this way a handbasinful of clots and urine was withdrawn and the bladder was cleared. A rubber catheter was tied in and the patient did well. This was the first time I had used a lithotrite for this purpose, but it answered admirably and made the process extremely easy.

It was suggested that the hæmorrhage had in the first instance been caused by the catheter. I do not believe that this was so. I have seen many cases where old men apparently bled into their bladders instead of into their brains. I refer to instances of vesical apoplexy which are not uncommon. One patient, now aged 75 years, whom I have known for some years, has had his life prolonged, I believe, by this less dangerous substitute for cerebral bleeding. Hence in some of these instances, a "masterly inactivity" is often indicated. When, however, the bleeding attains the proportions stated in this case interference becomes necessary. Failing with the lithotrite there did not appear to be any other alternative than that of opening the bladder above the pubes. The use of the lithotrite, however, proved to be the solution of the difficulty.

CASE 3.—A man, aged 47 years, came under notice at the hospital in November, 1898. For some weeks he had been attending as an out-patient for the purpose of having a No. 6 bougie passed for a contractile stricture in the deep urethra. On the day in question a No. 7 flexible bougie was passed. There was some tightness and a little bleeding followed. The patient returned at night with almost complete retention and with the bladder greatly distended, apparently with urine but, as it proved, more with blood and clots. The house surgeon succeeded in emptying it with an evacuating catheter and aspirator. On the following day the amount of distension and pain was as much as before. As the bleeding was unchecked and as it evidently proceeded from the strictured portion of the deep urethra I had the patient placed under ether again. I passed a medium-sized grooved staff and performed a perineal section, dividing the stricture in the median line. A large gum-elastic rigid drainage-tube was then passed into the bladder. About two pints of clots, blood, and urine were evacuated and the bladder was washed out and the tube was fastened in. For this purpose I use incompressible tubes[1] which were made for me some years ago by Mr. J. W. Wood of Liverpool. Being rigid, in case of bleeding from the deeper portion of the section it enables the surgeon to pack round the tube with gauze without interfering with the constant flow of urine from the bladder. This was not necessary in this instance as I took pains to make the section through the deep parts fit the selected drainage-pipe. The tube was removed in seven days and the patient was able to leave the hospital in three weeks with the wound soundly healed. His stricture has been greatly benefited and he now has a full-sized bougie passed when he applies as an out-patient. Here the single proceeding that was adopted at once stopped the bleeding at the spot from which it came, allowed the bladder to be emptied of a mass of clots which could not otherwise have been readily disposed of, and considerably improved the condition of the stricture. Digital exploration of the bladder, as Sir Henry Thompson described it, has reduced to simplicity the old perineal section without restricting its application.

I may here incidentally refer to a somewhat curious case of prostatic hæmorrhage and vesical distension recently seen. It was the case of a patient with prostatic enlargement who was entirely dependent upon the catheter. Whilst travelling to the North by an express train he had occasion to use his flexible catheter in the lavatory department attached to his carriage. Just as he had inserted the instrument and as the train was passing over some points he was thrown with great violence against the side of the carriage before he had time to withdraw the catheter. He felt hurt and faint and considerable hæmorrhage by the urethra followed and continued with much distension. I was requested to go down to see him with his medical attendant a few days afterwards and I found that he had suffered most seriously from the injury. The distension had been relieved by the catheter but the wound of the prostate, from which no doubt the hæmorrhage came, was followed by a sharp attack of epididymitis; the patient, however, made a good recovery. From the examination of the circumstances connected with the injury it was a marvel that the patient escaped a ruptured bladder. The case is not without its practical aspect.

Lower Berkeley-street, W.

[1] Figured in Surgical Disorders of Urinary Organs, fourth edition, p. 104.

THE OCULAR PHENOMENA ASSOCIATED WITH CHEYNE-STOKES RESPIRATION.[1]

BY ARTHUR L. WHITEHEAD, M.B., B.S. LOND.

THE ocular phenomena which occur in association with Cheyne-Stokes breathing are worthy of attention not only as clinical facts, but as possibly helping to throw light upon the etiology of this interesting symptom. Cheyne-Stokes breathing as described in the words of Stokes[2] consists in the occurrence of a series of inspirations increasing to a maximum and then declining in force and length, each inspiration being less deep than the preceding one until they are all but imperceptible and then a state of apparent apnœa occurs. This is at last broken by the faintest possible inspiration, followed by one more decided, marking the commencement of a new ascending and then descending series of respirations. In some cases the sequence of events is not so perfectly regular.

In the majority of recorded cases of this periodic alteration of the rhythm of respiration no eye symptoms whatever have been observed, but in a certain number definite disturbances of the intra- and extra-ocular muscles have been seen. The first recorded observation was made in 1866 by Leyden[3] who in the course of some experimental observations upon the brains of animals succeeded in producing Cheyne-Stokes breathing and noted that the pupils were contracted and that a form of nystagmus set in during the pause in the respiration. Leube[4] reported four years later a case from Ziemssen's clinic of mitral stenosis with ascites in which Cheyne-Stokes breathing came on after a dose of morphine. He observed that the eyes were open during the stage of breathing and were closed during the cessation of respiration, and that during the pause the pupils were contracted and failed to react to alterations of light; with the first returning breath, or in some cases

[1] A paper read at a meeting of the Leeds and West Riding Medico-Chirurgical Society on Feb. 3rd, 1899.

[2] Diseases of the Heart and of the Aorta, 1854.

[3] Archiv für Pathologische Anatomie und Physiologie und für Klinische Medicin, 1866, p. 549.

[4] Berliner Klinische Wochenschrift, 1870, p. 177.

shortly before it, they dilated again. Synchronously with the contraction of the pupils there was an automatic conjugate deviation of the eyeballs, the right eye turning out and a little downwards and the left inwards and a little down to a corresponding extent, this movement being repeated each time during the pauses, the eyeballs returning to the normal position during the respiratory period. Hahndel,[5] Merkel,[6] Carrer,[7] Sacchi,[8] Biot,[9] and several others have described similar cases with pupils contracted and not reacting to light during the pause, accompanied at times by conjugate deviation of the eyeballs. Cuffer[10] has produced typical Cheyne-Stokes breathing with the pupil changes described above by the injection of ammonium carbonate into a vein; and Smirnow[11] reports similar phenomena together with anæsthesia of the cornea occurring in animals after breathing sulphuretted hydrogen mixed with air. Hein[12] mentions a case in which the pupils were of moderate size during respiration and became gradually smaller with the descending phase and gradually widened with the ascending series of respirations. Robertson[13] describes two cases of cerebral hæmorrhage with similar pupil changes, in one case the pupils continuing to react to light but not doing so in the other one. Finlayson[14] was the first to report a case of Cheyne-Stokes breathing in which there was a rhythmic enlargement of the pupil with each individual respiration followed by a contraction of less degree with each expiration during the ascending phase and a reversal of the process during the descending phase, so that the pupil was contracted during the pause and widely dilated at the period of deepest breathing. Terrien[15] relates a case in which the pupils contracted down to the size of a needle-point during the stage of apnœa and became so dilated with the maximum inspiration as to render the iris almost invisible. At the same time there was a periodic anæsthesia of the cornea but not the slightest movement of the eyeballs. Langer[16] describes a case in which there was a periodic convergent strabismus with contracted but unequal pupils during the pause. It is interesting that no changes in the retinal vessels have been observed in association with these pupil changes; Schepelern,[17] Ewald,[18] and Knies[19] have specially investigated this point and reported in the negative. Dr. Barrs has given me the notes of a very interesting case of a child presenting many of the symptoms of tuberculous meningitis. On the fourteenth day of the disease Cheyne-Stokes breathing set in with associated movements of the eyes and head. The sequence of events was as follows: "The child sighs and half groans as if a pain has seized her in the head and then the ascending phase of breathing and head-rolling begins, the head being carried with each inspiration to the left with greater and greater excursions till the maximum is reached and gradually subsides again." With the movements of the head were associated conjugate movements of the eyeballs. It is interesting to know that this child recovered in the course of a few days and that she has remained perfectly well ever since.

We now have to consider some rather anomalous cases which present many of the symptoms above described but without Cheyne-Stokes breathing being present. Bullard and Wentworth[20] have reported the case of a child, two years old, who was suffering from whooping-cough and convulsions in which slight twitchings of the face set in and finally horizontal nystagmus with Cheyne-Stokes rhythm manifested itself. The pupils remained equal and reacted to light. Ultimately coma set in and death followed. No post-mortem examination was obtainable. The nystagmus was horizontal and began with rapid movements, the oscillations becoming progressively larger and more extended to a certain point and then diminishing in the same manner. A pause then ensued which was followed by a repetition of the previous rhythmical movements. The condition recurred at intervals during the day. There was no Cheyne-Stokes breathing and there were no marked pupillary symptoms. Dr. J. A. Gibson[21] has related the case of a child who presented all the symptoms of subacute tuberculous meningitis, but he remarks that owing to the ultimate recovery of the patient this may possibly appear to have been an error in diagnosis. He says, "During the course of the disease when watching her carefully one day a periodic closure of the eyelids attracted my attention and on further observation it was easy to determine that along with the closure of the lids there was a simultaneous contraction of the pupils and a state of complete unconsciousness. This condition remained for several seconds, the eyelids were then raised, the pupils dilated, consciousness returned, and the child raised her head to look about. The conscious state was present for a short time and was in its turn followed by the unconscious condition. In this case there was never, so far as my observation went, any tendency to a periodic change in the rhythm of the breathing." Belonging to this group of cases, each member of which is obviously allied to the others, differing only in detail and filling a gap in the series, are two cases observed by myself.

CASE 1.—A man, aged 23 years, was the subject of chronic left otorrhœa. He suffered from headache and general malaise, and pyrexia had been present for 10 days and was followed by tenderness of the mastoid. Opening and draining the mastoid cells did not relieve the symptoms, and drowsiness followed by stupor set in. The pulse was 100 and regular; the temperature was between 102° and 104° F., and the respirations were about 32 to the minute and perfectly regular. There was some rigidity of the limbs with exaggerated knee-jerks. At this stage I noticed that the pupils although equal and reacting to light were undergoing periodic rhythmic fluctuations in size. At the commencement of the cycle the pupil was about 1·5 millimetres in diameter and gradually and steadily dilated up to about five millimetres, subsequently slowly contracting to its former size, the whole stage occupying about 50 seconds, and after remaining contracted for a few seconds the cycle was repeated. At no period was the reaction to light interfered with and there was no nystagmus or other deviation of the eyeballs, and as mentioned above no alteration in the rhythm of respiration. Subsequently coma set in and was followed by death. At the necropsy a patch of localised meningitis was found over the affected temporal bone, with some flakes of lymph dotted about over the general surface of the pia mater.

CASE 2.—A man, aged 32 years, suffered from acute left otorrhœa of five days' duration. Headache, pyrexia, slight rigors, and some drowsiness were the leading symptoms. The mastoid antrum was opened, but no collection of pus was found and the lateral sinus which was also explored was found to be healthy. The pyrexia continued and there was considerable drowsiness alternating with periods of restlessness, but consciousness was not at all impaired and responses to questions were ready and intelligent. The knee-jerks were brisk and equal. The temperature was 101°, and the pulse was 100, full, and regular. The respirations were 24 to the minute and perfectly regular. At this stage the pupils displayed the same periodic movements which have been described in connexion with the first case. Ultimately coma set in, followed by death. At the necropsy a subdural abscess was found which had burst through the dura mater and had involved the right lobe of the cerebellum.

Considering all these cases, reported by so many observers, it is evident that the ocular symptoms met with in association with Cheyne-Stokes breathing are of considerable variety, and, moreover, that they may be observed in what we may conveniently call a Cheyne-Stokes state or condition apart from any disturbance in the rhythm of respiration. Every variety of case may be seen, from simple Cheyne-Stokes breathing to the complete clinical picture of persistent and regular Cheyne-Stokes respiration accompanied during the pause by unconsciousness, closed eyelids, contracted pupils, and lateral conjugate deviation of the eyeballs, the pulse during this period being frequent, small, and of moderately high tension. At the end of some seconds consciousness returns, the eyes open, the pupils slightly dilate, the pulse loses some of its tension, and a superficial respiration follows. Cases intermediate in character with one or more of these

[5] Ueber das Cheyne-Stokes'sche Respirations-phänomen, 1870.
[6] Deutsches Archiv für Klinische Medicin, 1871, p. 424.
[7] Gazeta Medica Italiana, 1877, p. 405.
[8] Rivista Clinica di Bologna, 1877, p. 33.
[9] Étude clinique et expérimentale sur la Respiration de Cheyne-Stokes, 1878.
[10] Récherches cliniques et expérimentales sur les Altérations du Sang dans l'Urémie, &c., 1897.
[11] Centralblatt für die Medicinischen Wissenschaften, 1884, p. 641.
[12] Deutsches Archiv für Klinische Medicin, 1880, p. 569.
[13] THE LANCET, Nov. 27th, 1886, p. 1016.
[14] Glasgow Medical Journal, 1887, p. 221.
[15] Le Progrès Médical, 1888, p. 18.
[16] Wiener Medicinische Presse, 1882, p. 1253.
[17] Hospitals Tidende, 1872, pp. 77, 81.
[18] Berliner Klinische Wochenschrift, 1874, p. 169.
[19] The Eye in General Diseases, 1886, p. 171.
[20] Boston Medical and Surgical Journal, 1892, p. 301.
[21] Birmingham Medical Review, 1889, p. 30.

phenomena associated with the Cheyne-Stokes breathing are recorded, clearly showing that whatever may be the nature of the condition underlying this group of symptoms occurring in the Cheyne-Stokes state, it may produce the effects which depend upon it by affecting the lower centres in the first place and spreading upwards to the higher, or by acting upon the higher first and afterwards invading the lower centres. Further, the cases reported by Bullard and Wentworth, by Gibson, and by myself show that the periodic changes produced by alterations in the centres may commence in, and be limited to, those which are not concerned in vital phenomena.

It is not desirable to consider in detail the numerous theories which have been suggested at various times to explain the causation of Cheyne-Stokes breathing. These have been fully stated and adequately discussed in Gibson's exhaustive monograph on the subject. It is quite clear, however, that any theory to be accepted must satisfactorily account for the whole of the associated phenomena. Filehne's [22] well-known theory, to which many writers still adhere, that the action of the vaso-motor centre is an important or predominant factor, is obviously entirely inadequate to account for phenomena which may occur without any changes in the pulse or even in respiration. A modification of the theory originated by Luciani [23] and elaborated by Rosenbach [24] and by Gibson,[25] that some special condition of the respiratory and other centres is responsible for the whole series of phenomena, is the only explanation at all satisfactory. The investigations of Langendorff [26] on kittens and of Sherrington [27] and others on frogs show that the respiratory centre is automatic and when freed from the influence of the higher centres becomes periodic in action. This is confirmed by the observation of Mosso [28] and others that periodic breathing is common in hibernating animals, and has been not infrequently observed in the human subject during deep sleep, especially after great exertion. Other medullary nuclear centres governing the heart's action and blood-pressure exhibit the same periodic tendency when cut off from the influence of the higher centres. If by cerebral pressure, by uræmic blood, by deficient arterial supply, or by the administration of certain drugs the control of the higher centres is lessened or abolished, the lower centres will tend to show periodic variations in the manifestation of their activity, more or less regular inversely as the control is exercised. This is the condition which I have ventured to describe as the Cheyne-Stokes state. The anatomical relations between the various nuclear centres affected in the production of this state are obvious and that anyone or several or all may be involved is equally clear, but the cause of the selective action is as yet quite unknown. It will only be by the careful comparison of accurate records of cases of a nature allied with those now reported that we can hope to arrive at a satisfactory solution of this problem and at the same time determine the diagnostic or prognostic value of the individual phenomena of this group of symptoms.

Leeds

[22] Berliner Klinische Wochenschrift, 1874, p. 152-165.
[23] Lo Sperimentale, 1879, p. 341.
[24] Zeitschrift für Klinische Medicin, 1879, p. 583.
[25] Cheyne-Stokes Respiration, 1892.
[26] Archiv für Anatomie und Physiologie, 1891, p. 494.
[27] Journal of Physiology, vol. xii., p. 229.
[28] Archiv für Physiologie, 1878, p. 441.

"COLLES'S LAW" OR "WALLACE'S LAW"?

BY JOHN A. SHAW-MACKENZIE, M.D. LOND.

THE association of the name of Colles with the clinical observation "that the child born of a mother who is without any obvious venereal symptoms ..... will infect the most healthy nurse whether she suckle it or merely handle and dress it ..... yet that this child is never known to infect its mother even though she suckle it while it has venereal ulcers on the lips and tongue," seems to be generally accepted in this country. Subsequent confirmation of such observations by Diday led him in conformity with the law of oneness of constitutional syphilis to refer to Colles's constant rule as "Colles's law," and, notwithstanding his admission in acknowledgment of the view of Baumes and a possible case of Cazenave that "this rule like every other must have its exceptions," he nevertheless thinks that "we are fully justified in asserting that a child born syphilitic through the agency of its parents never communicates the disease to the mother who suckles it." The validity and interpretation of Colles's law have comparatively recently been contested by Dr. Coutts [1] and Dr. G. Ogilvie,[2] and while the probability of exceptional cases has since become generally recognised their interpretation and consequent deductions are controversial points. On the one hand, Mr. Hutchinson, relying upon the general rule as opposed to the constant rule that one attack of syphilis confers for the most part protection against subsequent infection, regards these rare exceptions (a case of which he has never met with himself) as second affections, analogous to the cases of second affections in the male.[3] On the other hand, Dr. Coutts has suggested that the mother's apparent immunity may be due to the antitoxins of her infant in utero and that such immunity is not equivalent to acquisition of the disease itself. These exceptions may therefore be regarded as primary acquisition of disease. I myself, relying largely upon the repetition of manifestations in subsequent conceptions and during the puerperal period, have ventured to suggest that the mother's immunity, in accordance with Mr. Hutchinson's views, is equivalent to acquisition of disease, and that these exceptions might possibly be regarded as relapsing disease or, as noted in a case of Whitehead's, true secondary sore of the nipple with enlarged axillary glands induced by suckling. On the other hand, relying upon the disappearance of symptoms after delivery, I have ventured to suggest that the freedom from symptoms and immunity were conferred on the mother by processes in herself connected with full pregnancy, involution, and lactation, and that therefore these exceptions might be regarded as re-infections.[4]

In turning over the pages of THE LANCET of March 25th, 1837, recently, I unexpectedly came across a review of Colles's work and much to my surprise I found that considerable doubt was thrown upon the priority of Colles's observations in general. Appeal is made to the original work of W. Wallace, whose oral lectures in Dublin had appeared and were appearing in THE LANCET for 1833-34 and 1836-37. On referring to these lectures all the observations of Colles appear, apparently independently. Some of these observations—viz., the acquisition of disease by the "dry" nurse; in "wet" nursing; the transmission from secondary disease and the consequent modification—appeared in THE LANCET of Feb. 13th, 1836; others—viz., the contagious nature of the two forms of disease (hereditary and acquired) in the infant; the acquisition of disease from a strange child "not her own child"; disease as well as apparent immunity in the mother of a diseased infant—appeared in THE LANCET of May 7th, 1836, which was undoubtedly before the publication of Colles's work which was dated Jan. 20th, 1837, while the lecture dealing especially with the general immunity of the suckling mother to the disease of her own child appears in THE LANCET of May 20th, 1837. Another observer of similar facts appears in THE LANCET of March 11th, 1837. The remarks of Dr. P. Doepp, physician-in-chief to the Children's Hospital, St. Petersburg, on certain diseases in children, founded on a total number of 18,000 patients presenting themselves at that hospital from 1830 to 1833, are published from the translation of Dr. P. H. Green. Dr. Doepp testified to the hereditary (paternal) origin of disease in the infant as opposed to disease acquired from the mother during delivery; to the disappearance of manifestations in the case of a mother during pregnancy; to the immunity of the suckling mother to disease of her own child; to the fatality attending the separation of such infants from the breast; and to the devotion of those who suckled them in spite of the attendant risk.

The question of priority, however, is of minor importance in comparison with the observations and interpretations of Wallace as contained in these lectures published in THE LANCET and "through the medium of this journal" announced to "the whole profession"—"productions which for richness in fact, exactness of detail, and scientific precision of arrangement, have never been surpassed, probably not equalled by any series of clinical discourses hitherto

[1] THE LANCET, June 9th, 1894; "Infantile Syphilis" (Hunterian Lectures), THE LANCET, April 11th, 18th, and 25th, 1896.
[2] "Is Colles's Law a Misnomer?" THE LANCET, Dec. 1st, 1894; "The Exceptions to Colles's Law" (Royal Medical and Chirurgical Society), THE LANCET, Feb. 1st, 1896.
[3] Proceedings of the Royal Medical and Chirurgical Society, 1896.
[4] Transactions of the Third International Congress of Dermatology, 1896.

delivered in these kingdoms." "You remember the child," wrote Wallace on May 20th, 1837, "which you saw in the dispensary labouring under symptoms of syphilis. I mean the child which had the peculiar cry, the scaly lips, and the excoriated mouth, the bleared eyes, and the general eruption of reddish brown stains. You also remember that I pointed out to you that the mother who nursed this child was free in appearance from all kind of disease. Her nipple had not suffered although the child's mouth was so much affected. Now you know that such children are most apt to communicate disease to such sound women as nurse them. Why, then, did not this child communicate disease to its mother who nursed it and who seemed to be sound? I reply, because the mother was insensible to the action of the poison in consequence of her constitution being already contaminated. You may say she was sound. I admit she was so to external appearance, but you have, in my opinion, a proof in her having given birth to an unsound child that she was unsound. In fact, the mother of a child congenitally syphilitic is not susceptible of having disease produced in her by suckling her own child—at least so long as she remains in the same state as she was in when she gave it birth. I have never seen a mother injured by her own disordered child. This is a reason among many others that such infants should be nursed by their mothers. But if a mother be separated for a time from a child and cured and if the uncured child be brought into contact with her there is reason to believe that she would receive the infection. I have seen cases which prove this." In explanation and support of these views he brings forward the results of inoculation experiments on a man whom he calls "P. D" and on his wife whom he calls "M. D." to whom the man had given obvious disease. The man was unsusceptible to auto-inoculation and the woman was unsusceptible to auto-inoculation. She was, however, susceptible to inoculation from the man from whom she had originally acquired the disease. "What, then," he asks, "was the cause that inoculation was not followed in P. D. by any effect? By his case and by many others of a similar kind I have been led to the discovery of an important law relating to the propagation of the venereal poison. It is this: as soon as the constitution of any individual becomes contaminated with this poison all parts of his body are rendered insensible to inoculation with the matter of his own sores or of analogous sores of another individual although such matter has the power of producing disease in a sound person." With regard to the woman he writes, "We are authorised from this experiment to infer that M. D. was susceptible of the influence of the poison of P. D. although insensible to her own poison, which had emanated originally from that of P. D. You must observe that this conclusion corresponds with the general conclusion already made—viz., that a system labouring under a venereal disease is capable of being contaminated by a less exhausted virus than its own. Now, although M. D. originally received this infection from P. D., as soon as her disease became constitutional its virus was exhausted one grade more than that of P.D. and consequently she was still susceptible of the influence of the poison of P. D., although insensible to her own." A case which he adduces as an analogy to the reinfection of a mother by her own child is remarkable and suggestive. It is that of a man who obviously infected his wife. Separated from her and undergoing proper treatment his symptoms subsided, but on resuming cohabitation he acquired fresh disease of a primary exanthematic character, followed in turn by constitutional symptoms. Diday noted the manifestations reappearing in the mother in subsequent conceptions. He regarded them as fresh aggravations of poison from the fœtus in utero. His apparent forgetfulness of "Colles's law," to which he had given his adhesion, led me to suggest relapse rather than fresh infection under the stimulus of conception, in similar cases, as well as in these local sores, often seen in men who have previously suffered and who may or may not have exposed themselves afresh to admitted sources of contagion.

Not only does Wallace's work throw light upon the nature of immunity in the mother, from inoculation experiments, but also upon that of reinfection in exceptional and similar cases. Moreover, light is thrown upon many other questions which at the present day are the subject of anxious inquiry and controversy. It is a little remarkable that Wallace's work should have remained "latent" for so long. This has arisen probably from the fact of his death in 1838 preventing the publication of a second volume on constitutional disease which he tells us in the preface of his first published volume (1838) dealing with "primary" disease and its varieties would follow.[5]

Grosvenor-street, W.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

NOTE ON THE RADICAL CURE OF HYDROCELE BY PERINEAL EXCISION OF THE GREATER PART OF THE SAC.

BY H. MILTON, M.R.C.S. ENG.

HYDROCELE is one of the most frequent conditions with which the surgeon in Egypt has to deal and its treatment by puncture and injection of iodine is of old standing in that country. In quite recent times this treatment was largely carried out by barbers and I know a native *hakeema* (or lady doctor) of high standing who has a well-merited reputation as regards this particular operation. In my experience, however, the results given by any form of injection are very uncertain and I have long abandoned this method entirely and have treated all my cases by incision. In my earlier operations I incised directly through the scrotal tissues on to the hydrocele and I found very great difficulty in avoiding suppuration. This danger of infection is chiefly due to the nature of the integument and to the difficulty of applying a satisfactory dressing. Later I adopted the method recommended by Kocher of dislocating the hydrocele into the abdominal wall and incising over the inguinal canal. The results thereby obtained were more satisfactory but I frequently met with hæmorrhage into the scrotum subsequently to the closure of the wound. This risk of hæmorrhage is due, in part at all events, to the pressure on to the cord produced by the pad placed over the incision and owing to the laxness of the scrotal tissue this hæmorrhage may go on unperceived until a rise of temperature and pain necessitate a change of dressing and disclose a scrotum as large and as black as a hat. I have in all my recent operations adopted a method which by providing perfect drainage obviates the danger of hæmatoma and which has given me a series of most excellent results with an entire absence of complications. This method, while adopting the principle of dislocation, changes the position of the incision from the inguinal region to the perineum.

The operation is very simple. A purge and enema having acted satisfactorily the patient is placed in the lithotomy position, the perineal and adjacent regions are shaved and well scrubbed with soap-and-water and rubbed down with alcohol and sublimate, and the neighbouring parts are protected with sterile cloths. An assistant seizes the scrotum and causes the hydrocele to project into the perineum, forcing it down as far as it will go. An incision is then made in the perineal skin over the lower part of the projection from some two to three inches in length. A few strokes of the knife expose the tunica vaginalis and an incision into it allows its contents to escape. As the sac contracts its walls are seized with artery forceps and are gradually delivered through the incision. The hydrocele is then split from one end to the other and the larger portion of its walls is removed with scissors, the portion over the testicle and within half an inch of it being left untouched. The removal of this portion of the hydrocele is quite useless and more than that is harmful inasmuch as it leads to oozing and is nearly always followed by orchitis. All bleeding points are clamped and tied and the testicle is returned into the scrotum. A small drain is introduced and the skin incision closed with a fine suture. A perineal pad is applied and over this a large dressing which covers the scrotum and the penis, and by means of a T bandage or a sling from the neck holds them well up on the penis. The outside dressing is removed for urination and the perineal pad is changed daily

[5] Samuel Lane refers, however, to his work and untimely death "Lectures on Syphilis," THE LANCET, June 18th, 1842.

as it tends to get soaked with perspiration. On the second day the tube is removed, on the fifth day the stitches are removed, and on the following day the patient can get up and if necessary go about his business but wearing a suspender and a perineal pad.

Four points require attention. 1. Care must be taken not to incise the testicle instead of the hydrocele sac. Usually inspection and palpation leave no doubt on the matter, but if for any reason, such as a thickened sac, the decision is difficult the passage of a hypodermic needle will settle the question without appreciable injury to the testicle. 2. Care must be taken to avoid any injury to the cord or testicle and the most delicate handling only must be practised. 3. All drainage must be arrested and a drain must be left for the escape of any oozing. This latter precaution is, I think, of great importance to prevent hæmatoma of the scrotum and the presence of a tube and its withdrawal on the second day offers no considerable inconvenience. 4. The scrotum must be kept well up on the pubes during convalescence.

Cairo.

NOTE ON A RAPIDLY-GROWING OVARIAN TUMOUR COMPLICATING PREGNANCY; OVARIOTOMY; MISCARRIAGE; RECOVERY.

By DANIEL MOWAT, M.D. EDIN.

THE following case of an ovarian cyst growing rapidly during pregnancy and its removal verifies the remarks made by Dr. W. Duncan in THE LANCET of Feb. 4th, but in this case the patient unfortunately miscarried about two hours after the removal of the cyst, most probably from the too free handling of the uterus.

A woman, aged thirty-one years, who had had two children and one miscarriage, had suffered severely from metrorrhagia for several years. On examination in January, 1890, I found the uterus enlarged and fibroid nodules on the posterior wall. The ovaries were normal in size. In January, 1892, she consulted me and stated that she was about three months pregnant but that she was very large. On examination I found the abdomen much larger on the right side than on the left and dull on percussion. Per vaginam the uterus was enlarged to the fifth month and was pushed to the left side. A cystic swelling somewhat larger than a cocoanut was felt towards the right of the uterus. This swelling was diagnosed to be an ovarian cyst and the patient was strongly advised to go to a hospital for operation as she only had three rooms in a small house and was unable to obtain skilled nursing. This, however, she steadfastly refused to do and she was therefore kept under observation, but the swelling increased so rapidly in size that she was soon unable to leave her bed. As her condition was now serious I asked Dr. Duncan of Stamford-hill to see her. This he kindly did and he confirmed my previous diagnosis and expressed the opinion that an operation must be performed at once. To relieve the immediate distress I tapped the cyst, but owing to the gelatinous nature of its contents nothing came through the cannula.

On March 31st Mr. Reynolds of Highgate kindly gave the anæsthetic and Dr. Duncan of Stamford Hill assisted me in the operation. The usual incision in the central line was made and the bleeding vessels were seized at once. The great distension had caused thinning of the integuments and the cyst wall had ruptured at the point where it had previously been tapped. Adhesions had also taken place round this point spreading on the right side into the iliac fossa. These were separated and the tumour was emptied of its gelatinous contents which had to be scooped out with the hand. The tumour which was of the right ovary was then withdrawn, several omental adhesions were separated, and the pedicle was tied in the usual manner and dropped into the abdominal cavity. The pregnant uterus now gradually resumed the normal position in the centre of the abdomen where it immediately began to contract. The peritoneal cavity having been repeatedly washed with warm boric lotion the edges of the incision were brought together with silkworm gut. Two hours after the operation I found the patient in labour and she was shortly delivered of a fœtus six months old. The after pains were very severe but were relieved with morphia. The stitches were removed on the seventh day. A slight attack of phlegmasia alba dolens developed on the seventeenth day which prevented the patient getting about as quickly as she otherwise would have done. The result is very satisfactory, more especially as the operation had been considerably delayed by the patient's refusal to enter a hospital. It was, indeed, only undertaken to save her from impending death. The operation was performed in a small room in a poor locality and the only nursing she had was from her neighbours. Since the operation the patient again became pregnant, but unfortunately miscarried at the fifth month.

Stamford Hill, N.

NOTE ON A CASE OF BRADYCARDIA.

By CHARLES ORMEROD, M.D. BRUX., M.R.C.S. ENG., L.R.C.P. LOND.

A MAN, aged 83 years, well-nourished and extremely phlegmatic in disposition, complained of feeling very cold and of having occasionally what he called a "fit." At these times he turned white and felt faint. The attack was evidently cardiac in character. These attacks occurred on any attempt to get out of bed. The family history of the patient was unimportant. He had had two attacks of rheumatic fever, the second when he was a young man. He had been a non-smoker and had always been very abstemious in his habits. No drugs had any effect on the rate of the heart. On examination the heart dulness was found to extend upwards to the third costal cartilage. Its lateral limits were not markedly increased, the apex beat being in the fifth interspace just inside the nipple. There was a systolic murmur at the apex, inaudible at the back. The heart sounds at the base were natural, but all the sounds were very faint and distant. The pulse was extremely slow. On one occasion only 26 beats and on another 29 beats per minute were counted, but throughout the year during which he has been under my observation the pulse has ranged from 30 to 36 beats per minute. The liver dulness has not obviously increased. There is no albuminuria and no epigastric pulsation. Probably the cause of the extremely slow pulse in this case is some degeneration of the cardiac muscle which is possibly fatty in nature.

Liphook.

A Mirror OF HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

ROYAL FREE HOSPITAL.

A CASE OF SARCOMA OF THE CORPORA CAVERNOSA; REMOVAL; REMARKS.

(Under the care of Mr. W. H. BATTLE.)

IN two points the following case is remarkable. In the first place the disease is one of extreme rarity, very few cases indeed being recorded, and in the second place the long duration of the case is noteworthy, for more than seven and a half years intervened between the first appearance of the disease and the death of the patient. Another point of interest is the enlargement of the breasts; it is said to occur in cases of malignant disease of the lungs.

The patient, a very tall man, aged 50 years, was first seen in November, 1892. Two years and six months previously he had noticed a difficulty in micturition and six months later a very small swelling appeared in the middle of the perineum. As it gave rise to no pain or inconvenience he took no further notice of it. It increased in size and caused a sensation of weight and also some slight pain on walking. The patient was advised to go into the hospital but he declined; however, in January, 1893, he consented to become an in-patient

There was nothing noteworthy in his family history beyond the fact that his mother and one sister had died from consumption. His general health was very good and his thoracic and abdominal organs appeared to be healthy but the arteries generally were a little thickened. In the centre of the anterior part of the perineum was a fixed rounded prominence, resistant on palpation and of the size of a duck's egg; no fluctuation could be obtained and it was thought to be a new growth or possibly a chronic abscess. On Jan. 30th, 1893, the following operation was performed. The patient was anæsthetised, placed in the lithotomy position, and a No. 11 catheter was passed. The perineum having been shaved and cleansed an incision was made in the mid-line of the perineum, reaching from a point half an inch in front of the anus over the middle of the swelling to the scrotum. This incision was deepened until the tumour was reached; it proved to be very vascular and when it was dissected away from its surroundings it was found that it had arisen in connexion with the left corpus cavernosum, but extended across at the junction of the two into part of the right corpus cavernosum. The left corpus cavernosum was removed from its posterior attachments to the bone, the right one was cut across well behind the part invaded by the growth, and the tumour removed after section of the two corpora which were joined under the scrotum. No opening was seen in the urethra, but it was somewhat difficult to separate it in front, whilst it is probable that the necessary traction during the removal of the tumour had bruised it. The oozing of blood which was severe was stopped by means of Paquelin's cautery. The wound was swabbed out with a solution of chloride of zinc (40 grains to the ounce) and was stuffed with gauze soaked in glycerine and iodoform. The skin incision was partly closed with carbolised silk sutures and a sal-alembroth dressing was applied. The catheter was retained in the urethra. After the operation the temperature became variable, rising to 102°F., and on Feb. 5th to 103°, but it fell to normal on the 8th. The wound was dressed daily and on Feb. 5th as the stitches were tense, they were removed, and after that a little urine escaped by the wound. The quantity of urine thus escaping increased until nearly the whole of the urine passed by this channel. Occasional incontinence of fæces occurred from the 14th and he complained much of pain "in his bowels," but no cause for this pain could be found The wound began to heal and less urine was passed through it, and by the 24th most of the urine passed by the urethra, and on the 25th the catheter was left out. Turpentine stupes appeared to relieve the abdominal pain. On March 8th he was able to get up in the evening; the wound had almost healed and very exceptionally a small quantity of urine still escaped through it. The abdominal pain still occurred occasionally and the involuntary defecation still continued. Both these symptoms, however, improved later. On April 8th he had a discharge "like dirty water" from the rectum; it was thin, brownish coloured, and very offensive, but nothing could be found on examination. About the same time some pain and tenderness were present in the left iliac fossa and a small swelling of about the size of a cherry could be felt there. The pain had much diminished, the involuntary action of the bowels had ceased, and the wound of the perineum having completely healed all urine was passed naturally when he left the hospital on April 15th.

For six months after leaving the hospital he was apparently quite free from the disease; then the growth began to reappear in the old scar. It caused him no inconvenience or pain until in December, 1895, he had an accident, a fall from a scaffold, causing "concussion of the brain," and for this he was for five weeks in the West London Hospital and during his stay there the growth was noticed. It became painful and grew more rapidly. He was readmitted into the Royal Free Hospital on Feb. 19th, 1896. At that time his general condition was hardly changed, though he looked sallow and ill. In the perineum were found some small, rounded swellings along the middle line and also in the scar of the former operation. On examination per rectum the situation of the left crus penis was occupied by a firm ovoid swelling of about the size of a small hen's egg. It was decided to attempt the removal of the growth. The patient was anæsthetised and placed in the lithotomy position and the perineum was cleansed. Mr. Battle then made an incision through the skin and subcutaneous tissue on the left side of the perineum parallel to the ramus of the ischium and a finger's breadth internal to it. The growth was dissected out; it was very vascular and bled freely and the wound had to be packed several times with gauze and sponges to stop the bleeding. The growth extended as far as the pubic ramus and a second incision was made outwards for two inches from the centre of the first incision. The more anterior of the recurrent growths were left untouched at that time as the patient had lost a good deal of blood; the edges of the wound were sutured, no drainage tube being used, and the wound was dressed. The wound was dressed daily; no marked rise of temperature occurred, it never reaching 101°. After a day or two the bowels began to act involuntarily, as after the former operation. The wound healed well and on March 8th the patient left the hospital with the intention of returning shortly for operation for the removal of the remaining nodules of the growth. He did not, however, return to the hospital until August 31st, 1896, and then he said that he had had pain both when sitting and walking for several months and he had not been able to work properly since leaving the hospital. He had no trouble with micturition or defecation. On examination a firm, lobulated mass was found in the anterior part of the perineum. His general condition was not so good as it had been when he was in the hospital previously. He had a troublesome cough and numerous râles were heard all over the chest. As it was considered that these pulmonary signs might be due to secondary growths in the lungs Dr. Andrewes was requested to examine him. On Sept. 11th Dr. Andrewes found somewhat impaired resonance about the right apex with signs of a diffuse bronchial catarrh. There were no definite signs of any secondary deposit in the lungs but the signs present were not incompatible with such deposits. Mr. Battle decided not to operate. The violence of the cough increased and on the night of the 22nd the patient brought up with the cough a considerable quantity of bright blood. The hæmoptysis continued in varying amount and though his general health seemed to improve with tonics his cough continued to be very troublesome. Some enlargement of the mammæ occurred, especially on the left side. The physical signs hardly altered. The cough increased in severity and the patient grew weaker and on Dec. 7th he was removed to Highgate Infirmary where he died early in 1897. No post-mortem examination was made, but the symptoms were those of new growth in the lungs. On microscopic examination of the portions of growth removed at each operation it was found to be a spindle-celled sarcoma.

Remarks by Mr. BATTLE.—Sarcoma of the penis is a rare condition in surgical practice and this case has been considered worthy of publication on account of the part in which the growth originated and the somewhat unusual method of removal adopted. It is questionable if any other method of treatment would have afforded equally good results. It is probable that local recurrence would have been met with at a similar interval had the whole penis been removed and the urethra brought out in the perineum, for the recurrence was as marked in the tissues on both sides of the perineal urethra as in the posterior extremity of the united corpora cavernosa. The muscles of the perineum were adherent to the growth in parts at the first operation and although no tumour was apparently left there is no doubt that some infiltration had taken place into them. The course of the urethra could be readily ascertained during the operation, for its position was manifested by the catheter, and this was at no time visible, so that the discharge of urine from the perineum during the after treatment was probably the result of sloughing of a damaged portion. There can be no doubt that the patient was much more comfortable and far happier after this operation than if a more extensive one with removal of the penis had been performed. He had been warned of the probability of recurrence and had promised to return if there was any reason for thinking that there was anything amiss. I am indebted to Mr. Durham for having sent him to me for the second operation. On that occasion it was evident that the growths requiring removal were in a vascular region and that it might not be advisable to remove all at once; this was explained to the man who gave permission to me to act as I thought best. There was considerable hæmorrhage and a marked general effect on the system from the hæmorrhage which ensued on removal of one growth, so further operation was postponed. He afterwards withdrew his promise and refused operative treatment until it was too late. The hypertrophy of the breasts which was marked and lasted for

some six to eight weeks was a curious state for which I can offer no explanation. I have not before met with it in secondary sarcoma of the lungs. Microscopical examination of the growth showed spindle- and round-celled sarcoma, chiefly the former.

SALOP INFIRMARY.

A CASE OF PURPURA HÆMORRHAGICA IN WHICH STREPTOCOCCI WERE FOUND IN THE BLOOD; NECROPSY.

(Under the care of Dr. E. CURETON.)

HÆMORRHAGIC purpura probably arises from several causes, though in all cases it is likely that a toxin is present in the blood. In the following case the staphylococcic infection was in all probability the cause of the purpura, but it need not follow that all cases of this disease are staphylococcic in origin. An important point may be borne in mind, that in every case of purpura a bacteriological examination should be made of the blood; it is only by a regular, systematic investigation of all cases that we shall be enabled to form clear conclusions as to the etiology of this affection. For the notes of the case we are indebted to Dr. G. Gocher, late assistant house surgeon.

A schoolboy, aged 11 years, was admitted into the Salop Infirmary on Oct. 15th, 1898, under the care of Dr. Cureton, for general ill-health and an eruption all over him. For three weeks before his admission into the hospital the mother noticed that he was covered with spots. For the first two weeks he went to school as usual, but during the third week he stayed at home complaining of a sore throat and weakness in his legs. During this time he did not appear to be feverish, but he would not take his food and during the latter part of the third week he began to vomit. The mother then, seeing that he was really ill, took him to a medical man who advised that the patient should be taken to the hospital. The medical man kindly supplied the following information: "I found petechiæ on the body and limbs and the boy looking ill and weak. Four days later I saw him again and he seemed worse for there was bleeding from the mouth and right ear. The boy lived in a wretched home, was badly clothed, and was fed mainly on bread and jam." The boy had always been weak and delicate. The other children were quite well. There was no history of hæmophilia in the family and no history of rheumatism.

When the patient was first seen after admission he was lying curled up in bed in a very drowsy state. When spoken to he answered in monosyllables and appeared anxious to be left alone. He was inclined to be irritable. The temperature was 100·4° F., the respirations were 28, and the pulse was 120, small, soft, and compressible. He had a very pallid expression and when he slept his breathing was stertorous in character. Blood was continuously oozing from his gums and as a result his breath was exceedingly foul. The teeth were not loose. The heart and lungs were normal as was also the liver. The spleen was not enlarged. Abdominal palpation revealed nothing. The body was covered all over with a purpuric eruption. The spots varied in size from that of a split pea to a pin point and in colour they ranged from a dark purple to a bright red. They did not disappear on pressure. They were most profuse on the front of the chest and abdomen, the only parts free from them being the soles of the feet and the palms of the hands. A few were seen on the face, but not many, but the under surface of the chin and the neck were covered with them. The joints were neither swollen nor painful. With the ophthalmoscope well-marked retinal hæmorrhages could be seen. The bowels were confined; there was no blood in the motions. The urine was of specific gravity 1020 and acid; it contained no blood but a trace of albumin.

During the five days that the boy remained in the hospital his apparent condition continued pretty much the same except that he grew more and more anæmic. The temperature throughout kept remittent, the highest being 104° on Oct. 17th; the temperature never at any time fell below 100° till the 20th, the day on which he died, when it was 97°. On the 18th a systolic bruit could be heard over the pulmonary area. In both lungs behind some rhonchi and râles were now audible. A most noticeable feature was the rapid diminution in the number of the red blood cells. On the 17th they averaged 1,680,000 per cubic millimetre; on the 18th, 1,170,000; on the 19th, 600,000; and on the 20th (the day on which he died), 310,000. Any leucocytosis present could not be estimated owing to the great difficulty in getting him to bleed from a skin puncture. On the 19th the patient was getting much weaker and he refused all food. All motions were passed under him; he vomited once. In both motions and vomited matter blood was present. At no time during his illness was blood found in the urine. On the 20th the patient died in the early morning.

Necropsy.—A post-mortem examination was made about 10 hours after death. The body was markedly anæmic, as were all the internal organs. The lungs were small, pale and healthy. The heart was small and well contracted. It presented well-marked hæmorrhages in its walls. The stomach presented numerous hæmorrhages in its mucous membrane. The spleen was normal. The liver had a few hæmorrhages on its upper surface. There was only one kidney, the right kidney being absent. The kidney was lobulated, weighed six ounces, and showed no hæmorrhages. The intestines showed a few scattered hæmorrhages in the mucous membrane. On cultivating some of the blood which was taken from one of the chambers of the heart colonies of streptococci were seen. Cover slip preparations were made and under the microscope they were very well seen.

Remarks by Dr. CURETON.—The above case is interesting from more than one point of view. First the disease appears to have run the course of an ordinary purpura hæmorrhagica until some few days before admission to hospital when the symptoms assumed a much graver aspect with rising temperature, almost continuous hæmorrhage from the nasal and alveolar mucous membrane, attended by delirium and rapid loss of strength, suggesting a general infection of the system through the blood, and giving grounds for the belief expressed by Letzerich, Cassel, Reihl, and Wilson, that this disease may ultimately be proved to be due to a bacillus. Although the bacteriological examinations made thus far in purpura are not numerous there is little doubt that infection is the essential feature in some forms of this disease, particularly as in the case now recorded where there occurred a sudden onset of the alarming symptoms, high temperature, cerebral symptoms, showing a general systemic infection and running on to a fatal issue. It is to be hoped that further light will be thrown upon purpura as the result of a careful bacteriological examination of the cases and a careful examination of the blood both by the spectroscope and hæmatocytometer.

ROYAL INFIRMARY, LIVERPOOL.

A CASE OF CHRONIC INFECTIVE ENDOCARDITIS TREATED WITH ANTISTREPTOCOCCIC SERUM.

(Under the care of Dr. J. H. ABRAM.)

IN the Mirror of Hospital Practice in THE LANCET of Feb. 11th, 1899, we published a case of septicæmia in which injections of antistreptococcic serum were followed by recovery and in which the presence of streptococci in the blood was definitely proved. In the case published below a mixed infection occurred and the injections of antistreptococcic serum were apparently followed by the complete disappearance from the blood of the streptococci. Although the patient died the value of the evidence afforded by the case in favour of the action of the serum is hardly less than if she had recovered. Every case in which the antistreptococcic serum is employed after competent bacteriological examination should be put on record, whatever may have been the issue. For the notes of the case we are indebted to Dr. A. Stanley Griffith, house physician.

A woman, aged 39 years, was admitted into the Royal Infirmary, Liverpool, on August 2nd, 1898, complaining of general weakness, loss of appetite, and occasional swelling around the ankles. Her previous history was good and no history of rheumatism could be elicited. Other symptoms such as diarrhœa, emaciation, and a temperature of 102·5° F. on admission, with physical signs of mitral stenosis, led to the diagnosis of infective endocarditis and in confirmation of this nine days after admission a splenic embolism occurred. The blood was examined and streptococci were found in large numbers. It was then decided that antistreptococcic serum should be tried and 10 cubic centimetres of the serum manufactured by the British Institute of Preventive Medicine were injected into the buttock daily for a fortnight, the only appreciable effect on the patient being a steadying of the temperature and an improved

general condition. A week later nine injections of the serum manufactured by the Institut Pasteur de Paris were tried, but with no better result; the temperature again oscillated widely, diarrhœa continued to be obstinate, and general anasarca ensued, death occurring on Oct. 1st from multiple embolism. Post mortem blood cultures were made from the splenic substance and numerous colonies of staphylococci were found but no streptococci.

Remarks by Dr. GRIFFITH.—The chief interest of the above case lies in the later bacteriological examination which seems to confirm the value of the antistreptococcic serum, inasmuch as the streptococci which were present had disappeared, although the concomitant staphylococcic infection proved too serious for the patient's recuperative powers.

Medical Societies.

PATHOLOGICAL SOCIETY OF LONDON.

Discussion on "Pseudo-tuberculosis."

A MEETING of this society was held on Feb. 21st, the President, Dr. PAYNE, being in the chair.

The PRESIDENT referred to the fund which was being raised as a memorial to the late Professor Kanthack. The laws of the society did not allow of any contribution being made from the funds of the society, but he wished to draw the attention of members to it. The capital is to be invested and Mrs. Kanthack is to receive the interest during her life, the fund ultimately being employed to encourage research. The secretary of the fund is Dr. Drysdale, 25, Welbeck-street.

The PRESIDENT also referred with regret to the death of Professor Rutherford of Edinburgh and of Mr. Thomas Cooke.

Dr. G. SIMS WOODHEAD, in opening the discussion on Pseudo-tuberculosis, stated at the outset that the term "pseudo-tuberculosis" had been responsible for a good deal of misunderstanding and the number of conditions classified under it were so numerous that pseudo-tuberculosis was no longer of the slightest value as a term in classification, for numerous pathogenic conditions, most varied as to appearance and etiology, were described by different writers as pseudo-tuberculosis. Dr. Woodhead first referred to a series of cases which came under his own observation during the investigations carried on for the Royal Commission on Tuberculosis and which were, for the sake of convenience, spoken of at the time as "pseudo-tubercular" and which might undoubtedly have been mistaken for true tuberculosis had not the conditions under which they occurred and the microscopic examination given such definite indications to the contrary. In one case, that of a guinea-pig which died on the second day after injection of tuberculous meat, much too early therefore to show tubercle as the result of injection, the following conditions were found: venous congestion of the large intestine and cæcum; enlargement of solitary glands and Peyer's patches with small hæmorrhages into their substance; in these glands in the small intestine were white opaque points, sometimes scattered over the whole glandular patch; the mesenteric glands were slightly enlarged; the liver was mottled with small yellow patches; in the lungs were two yellowish grey points; the spleen was normal; and the mediastinal glands were evidently enlarged. The degenerated patches were much whiter than tuberculous nodules and the breaking down was more complete, so that on microscopic examination one could not make out even the outlines of any cells. No tubercle bacilli could be found in any of the lesions, but micrococci, especially in the form of diplococci, were numerous. As all the other guinea-pigs in the experiment were perfectly free from tubercle it was agreed to look upon it as some mycosis other than tuberculosis. Without having recourse to microscopic examination, however, Dr. Woodhead could not have satisfied himself that it was not a case of tuberculosis. In a couple of guinea-pigs inoculated with raw meat from the same cow small nodules were observed in the spleen resembling infarctions. On microscopic examination these nodules were found to have a central necrotic area of dead cells which had lost their outlines and had become fused into irregular masses. Short bacilli with polar staining, almost like diplococci, were found near the margin; around this central area was a zone of shadowy-looking splenic tissue, whilst outside this again was a distinct capsule of connective tissue and leucocytes. In the case of another guinea-pig injected with artificial tuberculous milk heated to 70° C. for one hour, at which temperature tubercle bacilli are rendered innocuous—at any rate, as regards guinea-pigs—the animal died 11 days after injection. In some adenoid patches there were opaque areas which were found on microscopical examination to consist of tissue in an advanced stage of necrosis and at the margin micro-organisms were found, again in the form of short bacilli with polar staining. In another specimen injected with artificial tuberculous milk, heated as before to 70° C. for ten minutes, the animal was killed 101 days after inoculation and a small, yellowish nodule was found near the surface of the liver and this was seen to be made up of a large mass of organising connective tissue in which not a single tubercle bacillus could be found. Dr. Woodhead described one or two other conditions which at first sight were mistaken for tuberculous granulations but in which true tuberculous structure or the presence of tubercle bacilli could never be demonstrated. He next proceeded to discuss some conditions found in the lungs of sheep brought to him by a medical officer of health who stated that he had had to confiscate large numbers of sheep showing this condition as tuberculous. Dr. Woodhead at once recognised the condition as what is called in Scotland "hoos"—small glistening pearly grey nodules produced by strongylus filariæ. Microscopical examination showed that the nodules consisted of small nematode worms coiled and surrounded by proliferating connective cells. Here they had a perfectly distinct process and one which should certainly not be called a pseudo-tuberculosis. Dr. Woodhead then called attention to Professor Muir's article on Pseudo-tuberculosis in Birds, where at least six different conditions were referred to as having been described. Professor R. Muir of Dundee described a form in birds which was probably the same as that described by Malassez and Vignal, Nocard and Pfeiffer. Several of these forms of pseudo-tuberculosis had been separated from animals inoculated with material from patients supposed to be suffering from atypical tubercle. In others again the guinea-pigs appeared to have been affected "spontaneously"—i.e., they had contracted the disease quite apart from experimentation. This was a point of considerable importance in connexion with Dr. Woodhead's own observations on pseudo-tuberculosis which evidently occurred, in certain cases at any rate, independently of inoculation, as in the animal that died two days after inoculation, whilst in another of his cases bacilli identical in appearance with those described by Nocard, Muir, and Pfeiffer were found to give rise to this condition on the eleventh day. This corresponded very closely with the condition presented in the experiments of Professor Muir who pointed out that a very marked feature in this special form of pseudo-tuberculosis was that both leucocytes and connective tissue corpuscles undergo a very rapid breaking-down and that caseation and softening both take place at a very early stage, the result being that the centre of a nodule becomes almost purulent rather than caseous. The proliferative changes in both Dr. Woodhead's and Professor Muir's cases were well marked and were confined almost entirely to the periphery of the nodule. There was an absence of giant-cells and the bacilli were usually found near the margin of the caseous centre. This accorded perfectly with what Dr. Woodhead observed in the pseudo-tuberculosis of guinea-pigs described in the Report to the Royal Commission on Tuberculosis. In referring to old cases found in museums labelled "tuberculosis" but which more recent investigators had recognised as being cases of actinomycosis, Dr. Woodhead called attention to a case described by Professor Boyce of Liverpool, which that writer very properly described as "aspergillo-pneumonomycosis," a much better term than that of "aspergillar pseudo-tuberculosis" given by Kotljar to a similar condition. Kotljar divided pseudo-tuberculosis into two groups, those of bacterial origin and those of mycotic etiology, these latter being produced by aspergilli. In comparatively recent times they had passed from an anatomical pseudo-tuberculosis to a pseudo-tuberculosis bacillus. A serious question was opened, however, by the discovery by Frau Rabinowitch in milk, cream, and butter of a bacillus which morphologically, and in its staining reactions, but in little else, was identical with the tubercle bacillus, and they had two positions from which it was absolutely necessary to extricate themselves. They had on the one hand organisms

of pseudo-tuberculosis which had the morphological and staining characters of the true tubercle bacillus, but which pathologically appeared to be widely separated from it; whilst on the other hand they had a whole series of lesions which presented certain superficial resemblances to tubercle, but which were not induced by the action of the tubercle bacillus. The protean forms of the histological lesions in tubercle made it difficult to describe any single form as typical. Almost every new tissue at some period of its development might be said to be like some stage of a tuberculous process in the rapid infiltration of leucocytes and even the presence of giant cells. The phenomena of endarteritis obliterans were seen also in many non-tuberculous conditions. Taking the tubercle bacillus as the etiological factor and basis of classification and taking the investigations of comparative pathologists in recent years who had found many lesions to be tubercle which were not previously so recognised Dr. Woodhead thought it very inadvisable that any nomenclature should be brought in which could only ultimately lead to confusion, and he hoped that the discussion would lead to the drawing up of an accurate and comprehensive nomenclature of many of those forms of disease which at present were practically unnamed. "Pseudo-tuberculosis" could no longer be regarded as a pathological entity, and although it might be necessary, owing to the exigencies of use and wont, to retain the term "tuberculosis," that term should be restricted as far as possible to a process which had a distinct etiological factor and they should minimise as much as possible the evil of the term by eliminating altogether such terms as "pseudo-tuberculous processes" or "pseudo-tubercular organisms."

Dr. SIDNEY MARTIN said that his own personal experience covered much the same ground as that of Dr. Woodhead, being obtained through observations which he made independently for the Royal Commission on Tuberculosis. He had repeatedly met with pseudo-tuberculosis or, as he preferred to call it, "bacterial necrosis" in guinea-pigs and rabbits. At first he was much troubled to diagnose the condition as the specimens in the liver and spleen so closely resembled those of true tubercle. But the appearances in other organs and the results of cultivation made it clear that they were non-tuberculous. Besides, there was great irregularity in the distribution of the lesions, although in inoculated tubercle there was a characteristically uniform march of infection along the lymphatics to the organs of the thorax and abdomen, and from each centre of infection tubercle bacilli could be demonstrated, and each inoculated into an animal gave rise to true tubercle. Cases of pseudo-tuberculosis were very rare in man, most of the recorded cases being due to some aspergillus. There were three, however, recently published which appeared to be due to some form of streptothrix. The first was recorded by Dr. Simon Flexner and occurred in a negro, aged 70 years. The chief lesions were in the lungs. The upper lobes were consolidated and there were scattered nodules in the lower lobe of the left lung, the nodules being larger than in true tubercle, and having undergone rapid softening. No cavities had been formed as in phthisis, the softened matter not being expelled. There was also infection of the omentum and peritoneum. No tubercle bacilli were discovered and inoculations did not give rise to tubercle. On microscopic examination a typical streptothrix was found in all the lesions. The second case was recorded by Buchholz. The patient was a man, aged 38 years, who had an empyema and consolidation of the lung with formation of cavities. The liquid material in the consolidated lung was traversed by branching hyphae, indicating infection by a streptothrix. No tubercle bacilli were present. The third case occurred in a woman. There was cystitis at first and then a number of small tumours appeared on the skin and suppurated. Later consolidation of the lungs occurred, supposed during life to be tuberculous. After death no tubercle bacilli were found, but there were branched threads of some streptothrix.

Dr. WASHBOURN said that it would be advisable to discard the term "pseudo-tuberculosis" as it was misleading. By some observers several bacilli which resembled the tubercle bacillus in morphology and in staining reactions would be called "pseudo-tubercle bacilli." They were of importance from the point of view of clinical diagnosis, for by relying upon a microscopical examination alone they might easily be mistaken for the tubercle bacillus. In the urine pseudo-tubercle bacilli of this nature were by no means uncommon. It was on this account that inoculations were necessary for the diagnosis of tuberculosis of the genito-urinary tract. The term "pseudo-tuberculosis" was usually applied in quite a different sense to the above. It was used to denote diseases which resembled tuberculosis in morbid anatomy but which were caused by other organisms than the tubercle bacillus. Of late a large number of such diseases had been described. There were many organisms which produced similar anatomical lesions to those produced by the tubercle bacillus. These organisms were of widely different character. There were bacilli such as the bacillus pseudo-tuberculosis, giving rise to caseating tubercles in many animals; the bacillus pseudo-tuberculosis murium, causing caseating tubercles in mice; and the bacillus pseudo-tuberculosis liquefaciens, causing tubercles in the peritoneum in the human subject; and similar lesions in rabbits. There were various kinds of streptothrix such as the one described by Dr. Flexner in the human being. There were also organisms which did not belong to the class of bacteria. A form of mould, the aspergillus, had been described as causing a tuberculous lesion in the human lungs and even nematode worms might produce tubercles consisting of giant cells and epithelioid cells in the lungs of cats and the kidneys of dogs. There was a skin disease described by Gilchrist and Stokes which was of especial interest. It resembled lupus vulgaris in its clinical aspect but it was caused, not by the tubercle bacillus, but by a blastomyces which they obtained in pure cultivations and which produced in animals by inoculation tubercles consisting of epithelioid cells and giant cells. It was quite probable that many of the cases of so-called tuberculosis of the skin were due to other organisms than the tubercle bacillus, as in a case seen lately in which tubercle bacilli could not be demonstrated either by microscopical examination or by inoculation. It was quite clear that the lesions caused by the tubercle bacillus were by no means specific, for many organisms might produce exactly the same changes. Again, the lesions produced by the tubercle bacillus were not constant; sometimes there was much caseation with formation of giant cells, while in other cases there was the production of a granulomatous tissue; in fact, the tubercle bacillus and the other pathogenic organisms mentioned obeyed a general law. They set up a more or less chronic form of inflammation the character of which depended partly upon the virulence of the organism and partly upon the relative susceptibility of the animal. Thus the same pathogenic organism might produce several types of inflammation and the same type of inflammation might be produced by several pathogenic organisms. The most important lesson to be learnt from this discussion was the importance of making a systematic bacteriological examination of every case in the post-mortem room—a procedure very much neglected in London.

Dr. JAMES GALLOWAY said that Dr. Murray of Glasgow had described a case in which mycosis fungoides and later general infection followed a kick from a sheep. An organism was isolated which appeared to be a streptothrix. Dr. Galloway also referred to two rare skin diseases. The first, "xanthoma with giant cells," had been called by Unna "pseudo-tuberculosis of the skin." The disease was infective and usually appeared first on the lower lid. The giant cells were arranged in a layer just beneath the epidermis. In one case several of these tumours formed on the face. No tubercle bacilli could be found in the sections. The second form of skin disease was characterised by the appearance of tumours over the surface of the body in which giant cells were present in very large numbers. They closely resembled sarcomata but after some months they disappeared as rapidly as they had come. It was clear that histological evidence alone could not be relied on for diagnosis, but experimental evidence from inoculation must be forthcoming as well.

Dr. WOODS HUTCHINSON had several specimens of the conditions which would come under the heading "pseudo-tuberculosis" which he had obtained from the Zoological Gardens. One was a lung in which the lesion was due to an aspergillus taken from a trumpeter bird and he had met with similar specimens in ducks and parrots. It did not appear to be of a very highly toxic character. The other was a monkey's lung showing what was known in Germany as "worm knots" and which could be seen to consist of a mass of coiled worms, probably either strongyli or filariæ. This monkey also had many thread worms in its peritoneal cavity which did not appear to have given rise to any disturbance.

On the motion of Mr. SHATTOCK the discussion was adjourned to March 6th.

HARVEIAN SOCIETY OF LONDON.

Varieties of Eczema and their Treatment.

A MEETING of this society was held on Feb. 16th, Mr. HENRY JULER, President, being in the chair.

Dr. WHITFIELD read a paper on Varieties of Eczema and their Treatment. After pointing out that the older classification into idiopathic and symptomatic was based on pure theory and that the other classifications merely indicated stages in the process of the regions attacked he proceeded to examine the evidence on which Unna's variety of seborrhœic eczema was based. After excluding psoriasis and simple pityriasis of the scalp the question was whether anything remained. This question he answered in the affirmative and defined seborrhœic eczema as a disease starting in the follicles, afterwards possibly attacking parts which were destitute of follicles, having a well-defined border to the edges of the patches and a strong tendency to serpiginous advance. Audry's case of seborrhœic eczema occurring on scar tissue was then discussed in order to show that although seborrhœic eczema could occur on areas of skin which possessed neither sebaceous nor sweat glands, nevertheless it flourished much more easily on normal skin. The fact of Audry having succeeded in inoculating the disease from one part of the patient to another was also mentioned as tending to show that the disease was parasitic in origin. Dr. Whitfield then shortly mentioned the other varieties of eczema which were supposed to own a parasitic origin—namely, the eczema folliculorum of Morris, that of Neisser, the eczema mycoticum of Hans Hebra, and the eczema circumscriptum of Crocker. He considered that the clinical evidence in favour of these diseases being due to organisms was rather strong but that until the different microbes had been determined so that the diseases could be properly classified, as had been done in ringworm, it was more convenient to group them all under the heading of "seborrhœic eczema." Passing on to the so-called simple eczema Dr. Whitfield said that there were two main opinions as to the origin of the disease, one of which was that the disease was an outward manifestation of a constitutional disorder and the other that it was due to some local irritant. He then proceeded to inquire what evidence there was of the relation of the disease to gout and quoted Garrod's paper on the subject to show that although gouty patients were undoubtedly more prone to the disease there were no distinguishing points to indicate an eczema of gouty origin from that due to any other cause. Colombini's researches on the toxicity of the urine in acute, weeping, and chronic dry eczema were then referred to and it was pointed out that as far as they went they were rather against the supposition of a toxæmia as the cause of acute eczema. The supposed danger of the sudden suppression of discharging rashes was then entered into and although there were one or two cases on record which seemed to show with reasonable certainty that the attempts at curing an extensive eczema had been followed by untoward results the accident was undoubtedly one of extreme rarity. On the other hand, a case had been published of a child who had died from septic infection from a wide-spread eczema and this danger seemed a much more important one than the supposed production of metastases. The parasitic theory of simple eczema was then referred to and was considered as entirely unproved. The recent papers of Leredde and Török were quoted and the incompleteness of the arguments for the bacteriological origin of eczema were pointed out. The great confusion appeared to be due to the wrong use of terms and it was strongly to be deprecated that observers did not more accurately describe the lesions about which they were writing. The probability was that there were at least two diseases, one of which was of entirely unknown origin and might be called simple eczema and the other was probably of parasitic origin, although the parasite was at present unknown, and this was the disease to which the term "seborrhœic eczema" might be restricted. Turning to the treatment of eczema, it was pointed out that in the supposed parasitic variety antiparasitic remedies could be used much more boldly from the start than in the simple variety. In the treatment of acute weeping eczema it was best to treat the skin with soothing lotions which had just sufficient antiseptic power to inhibit the growth of any accidental contamination with cocci which would be sure to occur. Later, when the discharge had ceased, ointments could be used and it was important that they should be of a sufficiently solid consistency not to run into the covering and leave the surface dry. Later resort might be had to stimulating applications to patches which proved resistant and it had even been recommended to scarify very old and thickened parts.

Dr. GALLOWAY remarked that he thought that Dr. Whitfield had taken an appropriate opportunity for protesting against the too easily accepted hypothesis of the bacterial origin of eczema and he especially agreed with Dr. Whitfield in protesting that no special coccus such as the "morococcus" had been discovered to act as a specific organism. If anyone took the trouble to examine carefully the evidence on which Dr. Unna had based his description of his morococcus as the specific cause of seborrhœic eczema it would readily be seen how slight it was. In the case which Dr. Unna demonstrated before the Hamburg Medical Society, in which he had produced what he called his inoculation vesicle from pure cultures of this "white" coccus, the important clinical fact outstanding was that the lesion so produced was not eczema at all but something much more closely resembling impetigo. From the time of this demonstration this coccus had been quoted by Unna and many of his disciples as the specific organism in his large group of seborrhœic eczema. About the same time as Dr. Unna Professor Welch of the Johns Hopkins University had published his observations on the bacteriology of the skin. He showed that the organism which he called the "staphylococcus epidermalis albus" was a constant denizen in the skin, where it lived a saprophytic existence and appeared to produce no pathogenic effects. No sufficient evidence is on record to prove that the morococcus is not an organism of the same class, and there is much to support the view that it is simply a saprophyte. One could not help coming to the conclusion that if any organism does produce seborrhœic eczema, at any rate it is not the morococcus. Dr. Galloway felt inclined to look upon eczema as the ordinary inflammatory reaction of the skin to many varieties of irritation. There was little doubt that amongst these various irritants bacteria exercised considerable influence. The type of eczema which appeared to be of parasitic origin was the seborrhœic variety, but he wished to emphasise the fact that the evidence in favour of this at the present time is almost completely clinical and has no definite bacteriological support. It is most important, however, from the practical point of view, to recognise the fact that these varieties exist, as the use of appropriate remedies must be determined by the exactitude with which we are able to define the causation of any individual attack. The value which has long been appreciated of antiseptic remedies in the treatment of eczema depends upon the fact that certain manifestations of it are produced by parasitic influence. The more clear we are, therefore, in our recognition of the found facts of eczema produced or influenced by micro-organisms, the more successful will our treatment of the clinical varieties become.

Dr. ALFRED EDDOWES said that he found Dr. Unna's "bottle" bacillus so frequently in cases of seborrhœa that he was disposed to think with Dr. Unna that it probably had a causal relation to the disease. But this was hardly the time to deal with the bacteriology of eczema in detail. He thought the word "eczema" should mean a condition, not a definite disease, unless the word were qualified with an adjective. It was useful clinically to speak of seborrhœic eczema, impetiginous eczema, tuberculous eczema, &c. He had accidentally inoculated two of his nail-beds by handling a patch of impetiginous eczema and had obtained pure cultures of the staphylococcus aureus from the resulting subungual abscesses. Dr. Sims Woodhead referred to the fact in a paper in THE LANCET some years ago. He showed a photograph of a case of eczema contracted probably from a school thimble and expressed his opinion that this slowly advancing form of dry eczema was of tuberculous nature. He also showed a photograph to illustrate what he called "sympathetic eczema." He had painted a chronic, stationary, sharply defined patch of eczema on the right forearm of a gouty (?) patient with strong iodine tincture. On the next week an exactly symmetrical patch of eczema appeared on the left forearm. In attempting to explain this remarkable reaction he suggested that the vaso-motor system, like the muscular system, of nerves was so linked together that a sufficient stimulus to the centres could produce bilateral response, as was observed in the involuntary, genuine, bilateral laugh of the hemiplegic.

As for treatment there was much that might be said. It was easy to lay down certain definite principles which were always useful. We should keep in mind the physiological state of normal skin. We must dry a wet skin and grease a dry skin. Dabbing with spirit and dusting with powder answered the first requirement and ointments the latter, while pastes occupied the intermediate place and were most valuable. Take, for instance, a bad case of "scald head," eczema of scalp, in a child. One thorough dressing with a paste such as Lassar's frequently left nothing more to be done by the medical man or the mother for a whole week, and at once made such a case greatly better and quite manageable. He was surprised to hear Dr. Whitfield say that he did not find pastes of great service.

Dr. BEZLY THORNE said that he attached more importance to toxic conditions of the blood in relation to eczema than Dr. Whitfield was disposed to accord to them, and that he could not regard as valid the argument that if the kidneys were sound they must be innocent of mischief, because they might by habit and regimen be inhibited from performance of their normal function. He gave as an instance the case of a lady who had for seven years suffered from a severe form of eczema palmaris with inflammation of the matrices and deformity of the nails, amounting in the index fingers to partial destruction. The total daily ingestion of fluids, consisting of tea, coffee, and claret, barely amounted to seven-eighths of a pint. In three weeks the disease was arrested by the use of an ointment containing ammoniated mercury, of a mixture containing grain doses of potassium iodide, and by the ingestion of two pints of water daily. This result which had been maintained up to the present time was mainly if not entirely due, Dr. Thorne felt convinced, to the water which had restored to the kidneys the power of promoting the purity of the blood. He added that he entertained no fear of the local effect of salt water, as in every instance in which patients affected with seborrhœic eczema had, under his observation, undergone a course of saline baths the skin had become sound before the termination of the treatment. That result might possibly be attributed to the diuresis which the baths in all cases induced.

Dr. WHITFIELD replied.

LIVERPOOL MEDICAL INSTITUTION.

Anatomy of the Pineal Gland.—Some Points in the Structure of the Dental Tissues.—Exhibition of Specimens.

A MEETING of the Pathological and Microscopical Section of this society was held on Feb. 16th, Mr. F. T. PAUL being in the chair.

Dr. ALFRED W. CAMPBELL read a paper on the Anatomy of the Pineal Gland and on Certain Pathological Conditions arising in it. He carefully described the naked-eye and microscopical characters of this organ. He had examined a large number of pineal glands and showed that in all there existed either a definite central cavity—a ventricle—or else collection of specialised tissue resembling neuroglia. When the cavity was present it was surrounded by similar tissue. In some pineal glands he had found pigmented elements similar to those found in the retina. He also described several pathological conditions which he had found in the pineal glands of insane patients. (The paper was illustrated by anatomical and microscopical preparations and by some beautiful drawings and numerous lantern slides.)—Mr. PAUL, Mr. LARKIN, and Dr. GRUNBAUM discussed the paper and Dr. CAMPBELL replied.

Mr. F. T. PAUL read a note on Some Points in the Structure of the Dental Tissues and illustrated his remarks by some microscopic specimens and lantern photographic transparencies.—This note was discussed by Mr. RUSHTON PARKER, Mr. LARKIN, Dr. GRÜNBAUM, Dr. MONSARRAT, and Dr. BUCHANAN.

Mr. C. G. LEE showed an Epithelioma of the Auricle and discussed its frequency and relative malignancy in this situation.

Mr. THELWALL THOMAS showed a Testicle with part of the Spermatic Cord attached into which an extensive hæmorrhage had occurred. It was removed from a man 32 years of age. The swelling appeared spontaneously. There was great pain and the testicle was drawn up to the external abdominal ring. The microscope showed no new growth.

Mr. LARKIN showed for Dr. JOSEPH WALKER a large Pedunculated Soft Fibroid of the Labium Majus removed from a middle-aged woman.

Mr. NEWBOLT showed the Left Humerus of a boy, aged 16 years, the upper end of which was occupied by a round-celled sarcoma. Amputation was done 10 months ago and as yet there was no recurrence.

Dr. G. G. STOPFORD TAYLOR showed a Microscopic Section of an Epithelioma of a Lupus Scar. The growth was situated on the left side of the neck of a man, aged 46 years, who had suffered from lupus for 40 years.

Mr. DOUGLAS CRAWFORD showed some Microscopic Sections of a portion of an Enlarged Prostate. The part had been removed by suprapubic prostatectomy for urinary obstruction. The patient was 54 years of age and had already had bilateral vasectomy performed with no permanent benefit. The section was much more glandular than was usual.

Dr. ALEXANDER showed the Brain of a Male Epileptic, aged 20 years. There was complete atrophy of the left temporo-sphenoidal lobe and the posterior parts of the frontal convolutions. The fits began in and affected chiefly the right side of the body. The right leg was permanently partially paralysed, but the paralysis was always much increased after a fit.

Dr. BUCHANAN showed specimens illustrating the Structure of Molluscum Contagiosum.

A short discussion followed in which several members took part.

PLYMOUTH MEDICAL SOCIETY.—A meeting of this society was held on Feb. 11th, Mr. M. H. Bulteel, President, being in the chair.—Mr. F. Everard Row read a paper on the Diagnosis and Treatment of Surgical Diseases of the Kidneys with especial reference to Stone and Tubercle. The chief symptoms for the diagnosis of stone and tubercle were, he said, (*a*) pain, (*b*) the condition of the urine, (*c*) enlargement or otherwise of the kidney, and (*d*) reflex symptoms such as vomiting and retraction of the testicle. The pain in both diseases was liable to the greatest possible variation both in intensity and situation, but more especially so in calculus, and was due to several causes, as, for instance, to the passage of either a stone or débris of new growth down the ureter producing what was known as renal colic. The pain of stone was more frequently reflected and paroxysmal and was often referred to the neck of the bladder to which attention was drawn instead of the true cause, but may be reflected anywhere from the shoulder to the neck. Large stones embedded in the substance of the kidney as a rule caused less pain than smaller stones, which might be free in the pelvis of the kidney or become impacted in the ureter. Hæmaturia was a frequent accompaniment of stone, but was not so frequent in tubercle. Pus was present in both tubercle and stone; but in tubercle it appeared early in the disease; in stone it was not present unless pyelitis had been set up by the irritation of the foreign body. Unless a kidney was much enlarged it was not easy to palpate it. When the enlargement was due to calculi crepitus might be felt by placing one hand in the loin and pressing the kidney towards the fingers of the other on the abdomen. As to the reflex symptoms, vomiting due to renal colic did not differ from that due to other causes. Retraction of the testicle was one of the most important features in renal stone. In tuberculous disease early nephrectomy afforded the best chance of cure. When disease of the other kidney was obvious or even uncertain nephrectomy was a futile or dangerous proceeding and nephrotomy and drainage should be resorted to. In calculus the treatment resolved itself into palliative and operative. Palliative treatment consisted in relieving the pain of renal colic by hot baths, fomentations, and anodyne injections. The operative treatment consisted of exposing and puncturing the kidney and if a stone was found incising the organ and removing the foreign body. If the kidney was disorganised by a number of stones and by pyelitis and the other kidney was known to be present and in fair working order either by cystoscopic examination or by an incision in the loin nephrectomy was indicated. In order to determine this latter point abdominal nephrectomy was taking the place of the lumbar method.—Cases and specimens were exhibited by Mr. Row, Mr. Woollcombe, Dr. Pethybridge, Dr. Rider, and Mr. J. R. Rolston.—A communication was read from the Corporate

and Medical Reform Association and on the motion of Dr. Shaw, seconded by Mr. J. R. Rolston, the following resolution was carried *nem. con.*: "That this meeting of the Plymouth Medical Society begs to accord to the Direct Representatives of the medical profession on the General Medical Council and those who supported them a hearty vote of thanks for the action they have taken on the question of Illegal Certificates of Proficiency in departments of medicine, surgery, or midwifery."—A communication was read from the Medical Institution of Liverpool on the amendment of the Vaccination Act, 1898, but it was decided to take no action in the matter at present.

OXFORD MEDICAL SOCIETY.—The fourth ordinary meeting of this society was held on Feb. 10th in the Anatomical Theatre at 8.30 P.M., Mr. H. P. Symonds, President, being in the chair.—Mr. Farmer showed specimens of (1) Hour-glass Stomach from the body of a man; (2) Vermiform Appendix lying in the Post cæcal Fossa and attached firmly to the intestine; and (3) a Skull with a Clean-cut Perforation through the Mastoid Process exposing the antrum. No history attached to the specimen, but the opening suggested the trephine.—Mr. Winkfield read a paper on the Use of Antitoxin in Diphtheria. Reviewing the mortality returns of this disease in Oxford during the past 10 years he showed that there had been a striking decrease in mortality since the discovery of antitoxin (from 34·3 per cent. before 1894 to 14·17 per cent., the present rate of mortality). He laid stress on the fact that in no case did laryngeal symptoms set in after injection of antitoxin, while in several cases its timely use rendered tracheotomy unnecessary. He used Behring's serum, giving 600 units as an ordinary dose in mild cases. For more severe cases 1000 units were recommended, while 1500 units were regarded as a "treble dose." For prophylactic purposes 200 units were sufficient. He rarely had occasion to repeat the injections. After one injection the membrane was noticed to curl up at the edges and to clear off rapidly, the glandular swellings subsided, and the throat was usually clear within a week. He noticed copious perspiration and a tendency to faintness after injection and usually kept the child lying down for three weeks. A rash had occurred occasionally, but he had had no kidney complication.—Mr. Parker read a paper on Training in Relation to Athletics. He drew attention to two points—(1) regular and graduated exercise and (2) diet. These two methods he stated to have been in vogue since ancient times, especially among the Greek athletes. Their diet was farinaceous at first, but meat was substituted later. He advocated that the chief exercise in training should be that for which the athlete was preparing. By gradually increasing the amount of work done the body might be trained to undertake tasks which at first would have been impossible. Therefore, in those athletics, such as rowing, which required severe and prolonged exertion the training should be long and gradual. Rowing in untrained men was distinctly harmful. Mr. Parker insisted on the importance of training on individual merits. He deprecated the sudden change from an ordinary diet to an almost entirely proteid one. Since physiologists showed that muscular exertion, unless carried to exhaustion, did not involve increased nitrogenous waste he advised that the bulk of food taken by an athlete in condition should be of the carbohydrate order. He discussed the question of "second wind" and "staleness." He regarded "second wind" as either the result of the readjustment of the systemic and pulmonary circulation or as due to the toxic products of muscular action acting on the respiratory centre. "Staleness" he thought was probably an auto-intoxication.—An interesting discussion followed.

IPSWICH CLINICAL SOCIETY.—A meeting of this society was held on Feb. 9th, Mr. S. O. Eades, President, being in the chair.—The President showed a patient from whom a large Myxo-sarcoma of the Parotid Gland had been removed. The patient was a man, aged 46 years, and the growth first occurred at the age of 21 years; it was removed by Mr. Christopher Heath when the patient was 27 years of age; it recurred and was removed a second time at the age of 36 years, since which time—i.e., ten years ago—there had been no sign of recurrence. Photographs of the case at different periods were also shown.—Mr. C. K. Moseley read notes of a severe case of Purpura Hæmorrhagica in a girl aged 11 years. Bleeding from the gums was first noticed and hæmaturia and constant vomiting were marked symptoms in the case. Jaundice supervened, but the child eventually made a complete recovery. Mr. Moseley had found turpentine a most efficacious drug in this condition.—Mr. Moseley also read notes of a case of Retention of Urine in an old man, aged 80 years, the subject of right-sided hemiplegia. He suddenly passed a large quanity of pus and this was followed by retention. It was found impossible to pass an instrument into the bladder and after aspirating once or twice Mr. Moseley performed suprapubic cystotomy. He was unable to pass a bougie into the urethra from the bladder and the patient now had a permanent urinary fistula kept open by means of a tube and refused any further surgical interference. There was no prostatic enlargement and the cause of the retention was probably a peri-urethral abscess.—Dr. Brown showed a specimen of Sarcoma of the Bladder with Secondary Growths in the Liver. The patient was suspected to be suffering from stone in the kidney and died suddenly from hæmoptysis.—Dr. Brown also mentioned a case of Hæmaturia in a woman five months pregnant in which the diagnosis was obscure. Labour was induced and complete recovery rapidly resulted.—Dr. Ward read notes of a case of Sarcoma of the Bladder in which the growth was found to be too extensive for removal. The patient died from septic meningitis two days after operation.—A prolonged discussion took place on the subject of the Hospital Accommodation in Ipswich for infectious cases and especially for cases of diphtheria.—Mr. Corfe stated that since the last meeting of the society the board of management of the East Suffolk and Ipswich Hospital had decided to admit to the wards cases of diphtheria requiring tracheotomy.—Mr. G. S. Elliston, medical officer of health, thought that every medical practitioner should use the diphtheria antitoxin before sending cases to the fever hospital.—The following resolution was unanimously passed: "That in the opinion of the members of the Ipswich Clinical Society the present accommodation at the infectious hospital of this town is insufficient and that Mr. G. S. Elliston, medical officer of health, be asked to approach the Health Committee to provide proper room for increased treatment, with special reference to the desirability for accommodation and treatment of persons suffering from diphtheria."

FORFARSHIRE MEDICAL ASSOCIATION.—A meeting of this society was held in the University College, Dundee, on Feb. 3rd, Dr. McGillivray being in the chair.—Professor Kynoch showed a Solid Tumour of the Ovary associated with a Multilocular Cyst weighing seven and a half pounds removed on account of rapid ascites. The liver was cirrhotic and so the cause of the ascites was doubtful. Reference was made to two other cases of solid ovarian tumours.—Dr. Halley showed a uterus from a case of Ruptured Extra-uterine Gestation and with a second fœtus in the uterus. The patient, aged 29 years, was admitted to the Royal Infirmary, Dundee, in an extremely collapsed condition suffering severe pain which had come on suddenly eight hours previously. She stated that she was seven weeks pregnant. On opening the abdomen it was found to be filled with blood which was seen to be escaping from a rupture in the right Fallopian tube just external to its junction with the uterus which was noticed to be somewhat enlarged. The Fallopian tube was ligatured as rapidly as possible and the wound closed. The patient scarcely rallied at all from the excessive bleeding before the operation and died in 10 hours.—Dr. J. W. Miller read notes of a case of Lateral Sclerosis which he had had under his care 20 years ago. The illness commenced with a sudden attack of abdominal pain which recurred at intervals and was followed later by tetanic contractions, at first in the right arm and later extending. These tetanic spasms were the most marked symptom and were easily induced. The patient lived three and a half years, having been bedridden three months before her death with paralysis of the upper and lower extremities but having no impairment of the intellect.—Professor Stalker gave an account of a case of Bright's Disease with Uræmia which had been treated by venesection with the result that the convulsions ceased. When any signs of impending uræmia showed themselves venesection was performed and the signs disappeared and the convulsions were prevented. After four venesections the headaches did not recur but the daily amount of urine still remained low. This improved under internal administration of pilocarpine and tapping of the abdomen for ascites. Other remedies had failed and the patient was now doing well. Professor

Stalker referred to a similar case which his colleague Dr. Whyte had treated by venesection with the result that the fits ceased. He thought that venesection was of distinct benefit in cases of kidney disease where there was very little dropsy and persistent headache and also in some cases in which cardiac distress was at its worst.—Mr. Steele Moon quoted two cases in which he had performed venesection with improvement when other remedies had failed, one of Bronchitis with marked dyspnœa and the other of Uræmia.—Dr. J. W. Miller, Professor Kynoch, and Dr. Duncan also spoke.

NOTTINGHAM MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Feb. 15th, the President, Mr. T. Davies Pryce, being in the chair.—Mr. A. R. Anderson read a paper on the Radical Cure of Hernia, based on 117 cases in which he had operated for the radical cure of inguinal hernia, to which variety he confined his remarks. These included strangulated cases in which this operation had been done. There were four deaths, two occurring in the strangulated cases. The deaths in the non-strangulated cases were one from bronchitis after ether and one from cellulitis of the abdominal wall in a fat, middle-aged man with a bulky, irreducible hernia containing large intestine. Of late Mr. Anderson had exclusively performed the Bassini-Halstead operation which he considered as the best. 50 cases had been operated on by this method without a single relapse as far as he was aware. He said that his results would not be accepted by many surgeons as it was only three years since he commenced to perform this operation, but he considered that experience of Bassini's operation would remove the doubt which was felt by some as to the probability of a radical cure being effected by operative means. He agreed that this doubt still existed for all operations which left the cord in the canal and did not obliterate as well as close it. He did not admit that five years must elapse before a Bassini's operation could be accepted as effecting a radical cure; on the contrary, an examination of the dense resulting cicatrix occupying the site of what was once the inguinal canal conveyed the conviction from the first that the patient would never again be ruptured at this spot. Mr. Anderson described the operation which he was in the habit of performing and discussed the questions of the wearing of a truss after operation and the advisability of operating in young children. He never ordered a truss after Bassini's operation unless the circumstances were altogether exceptional. With respect to operating on children he said it should be adopted as the routine treatment at any age in the children of the poor and in the children of the well-to-do in all cases of complete scrotal hernia. Among the children of the former it was impossible to ensure accurate fitting of trusses or pads and very difficult amongst those of the latter, whilst the absence of mortality and the tendency towards cure rendered the operation at that period of life one of the most successful in surgery. Mr. Anderson showed two cases in which he had recently operated—viz., a man, aged 25 years, and a child, aged one and a half years, and directed attention to the obliteration of the canal, the absence of bulging, and the firmness of the scar.—Mr. Willis showed a man, aged 18 years, suffering from Dyspnœa of many years' duration caused by an unilateral enlargement of the thyroid which he suggested was an adenoma and proposed its enucleation.

NORTHUMBERLAND AND DURHAM MEDICAL SOCIETY.—A meeting of this society was held on Feb. 9th, Dr. James Murphy being in the chair.—Dr. G. V. Miller exhibited a case of Recurrent Intra-ocular Hæmorrhage. The patient was a man aged 28 years. Five months ago he observed a black spot before the right eye which gradually increased in size and in four hours the eye had become totally blind. 15 years before, and again five years ago, the patient had noticed a similar fly-like spot before the same eye followed by dimness of vision lasting about a fortnight. There was no history of injury or any discoverable cause, though the patient had been the subject of frequent attacks of epistaxis. At the onset of the present attack there was evidence of extensive intra-ocular hæmorrhage, either sub-hyaloid or between the retina and choroid, the media at that time being clear. At a later date, however, the hæmorrhage had evidently burst into the vitreous.—Dr. T. Oliver brought forward a man suffering from Plastic Bronchitis and exhibited several large and very perfect Bronchial Casts which the patient had expectorated. The history extended over a period of four years. The casts in this case were solid and not tubular. No cause had been discovered.—Dr. G. R. Murray showed the following patients: 1. A case of Unilateral Glosso-laryngeal Paralysis in a man aged 46 years. The lesion was not considered to be central but rather due to a localised syphilitic meningitis involving the roots of the spinal accessory and hypoglossal nerves. 2. A case of Progressive Muscular Atrophy in a woman aged 43 years. 3. A case of Locomotor Ataxy with Goitre. This patient, a man aged 52 years, had a definite history of syphilis. 4. A Cretin. This patient, a woman aged 23 years, showed distinct though slight evidences of cretinism. There was still apparently a considerable amount of active thyroid tissue.—Dr. Hume exhibited three cases of Operation on the Stomach.—Mr. Williamson showed a boy upon whom he had recently operated for Acute Infective Epiphysitis of the Upper End of the Humerus.

BIRKENHEAD MEDICAL SOCIETY.—A meeting of this society was held on Feb. 10th, Mr. H. Nazeby Harrington, President, being in the chair.—The following resolution was unanimously adopted: "That the fee of one guinea should be charged for filling up certificates under the Workmen's Compensation Act and that hospital authorities should be asked to allow their house surgeons to charge the same."—Dr. James Barr (Liverpool) read a paper on Meningitis. He entered minutely into the etiology, pathology, and symptoms of the different types and held out a much more favourable prognosis than was usually given in such cases. In the way of drugs his sheet-anchor was opium freely administered. Latterly he had been using morphia almost exclusively in quantities varying from about two up to six grains daily. In very young children he started with a twentieth of a grain every three hours and rapidly increased the quantity so as to keep the child constantly under the action of the drug. With children of six or seven years of age he began with a sixth of a grain; over that age he generally gave the drug hypodermically. In a very successful case in an adult he administered six grains daily for a fortnight. He said that if the treatment was commenced early before there was any effusion into the ventricles a patient suffering from meningitis would not be easily poisoned with opium. He did not, however, look upon opium as a specific for this or any other disease. The bowels were kept open and as occasion required various remedies were used to check vomiting, while almost as a routine internal antiseptics such as salol, benzo-naphthol, &c., were used.

ÆSCULAPIAN SOCIETY OF LONDON.—A meeting of this society was held on Feb. 17th, the President, Mr. D. H. Goodsall, being in the chair.—Mr. A. Quarry Silcock read notes of a case of a boy, aged 18 years, who had been Run Over by a Cart; he had been laid up with abdominal pain for five weeks and his left hypochondrium was swollen and dull to percussion anteriorly and resonant posteriorly. The abdomen being opened a cyst resembling an ovarian cyst was found to be inseparably fixed to the stomach. Accordingly the cyst was incised and drained, and its edges were stitched to the abdominal wound. The contained fluid was blood-stained and alkaline, its specific gravity was 1018, and it had lymph corpuscles and granules; there was no ferment present. He regarded this as a mesenteric cyst resulting from the injury.—Dr. A. Morison showed a series of cases of Heart Disease and said that belladonna was preferable to digitalis in simple aortic incompetence, though if that state were supplemented by mitral incompetence digitalis was useful. Bradycardia, as tachycardia, had (1) a nervous origin and (2) a cardiac origin. In the latter case treatment by drugs failed but in the former it was efficient. The combination of digitalis and strophanthus excelled either alone. The value of arsenic in heart cases on account of its improving nerve tone should be borne in mind.—A general discussion followed.

NEWPORT MEDICAL SOCIETY.—A meeting of this society was held on Feb. 1st, the President, Mr. H. E. Williams, being in the chair.—Mr. O. W. Morgan showed a case of Cystic Tumour of the Neck.—Mr. H. B. Seddon read notes and showed a case of Raynaud's Disease.—Mr. J. Lynn Thomas read a short paper on Thyroidectomy with and without General Anæsthesia and showed a specimen of Tumour Removed. Mr. Thomas also showed a special form of Scissors for Convenience whilst Operating.—The honorary secretary read the

report of the committee referring to the proposed lending library of the society with draft of rules. The same were discussed and agreed to.

Reviews and Notices of Books.

George Harley, F.R.S., or the Life of a London Physician. Edited by Mrs. ALEC TWEEDIE. London: The Scientific Press, Limited. 1899. Price 16*s*.

THE late Dr. George Harley was a well-known physician and as he has been dead only a little over a year both his name and his work will be familiar to our readers. The detailed story of his life is largely compiled by his daughter, Mrs. Tweedie, from diaries or autobiographical memoranda and is designed to please and inform a lay public rather than a medical one.

George Harley's life was not exactly typical of the life of a London physician, so that Mrs. Tweedie's sub-title is to some extent misleading. He was born in Haddington and educated in Edinburgh, Paris, and Vienna, and certain German Universities. He did not come to London until his twenty-sixth year, when he was appointed Assistant Director of the Anatomical Museum of University College, mainly, it would appear, through the intervention of the all-powerful Sharpey who recognised the breadth of his biological work. During his student days at Paris he went considerably into certain classes of French society and being a French scholar was able to appreciate the things that he saw and heard and to reap much more benefit from a sojourn in a foreign university than accrues to the usual British student. From the knowledge of French manners thus acquired he was able to write down in his diary some interesting observations concerning Napoleon III., the infamous *coup d'état*, and the vexed question of whether that curious ruler was or was not a coward. On obtaining a *locus standi* in London George Harley appears to have made his way rapidly both in society, particularly of what we may call the upper Bohemian sort, and in the world of science. His methods were original and thorough and his power of work was appreciated by his contemporaries as well as by his seniors. He was early elected a member or corresponding member of many learned societies, a Fellow of the Royal College of Physicians of London, and in 1865 a Fellow of the Royal Society. At University College he was a successful lecturer, holding his own in such good company as Sir William Jenner, Sir John Erichsen, Sir J. Russell Reynolds, Dr. Charlton Bastian (whose name the author misspells), Sir Alfred Garrod, and Dr. W. Hayle Walshe. (Is this distinguished physician the person whom the author alludes to as "Mr. Walsh, the eminent surgeon"?). At University College Dr. Harley made microscopic studies his passion and to overwork at the microscope must be attributed a terrible physical calamity which fell upon him in 1866. He became suddenly blind under circumstances which have been described by himself in the columns of THE LANCET.[1] For nine months he lived in total darkness—not simply in a darkened room but in total darkness—and during that time and the period immediately following he kept a record of the sensations and his acquired ability to see in the dark, the time that visual impressions lasted, and the order in which appreciation of colours returned. For an ardent worker and an ambitious man still in the prime of life thus to behave in the face of such an overwhelming calamity as total blindness is a signal proof of courage. It was two years and a day before he was able to take up his work again and he then had to wear darkened glasses, but as time went on he recovered his powers of sight.

The most interesting chapters in the book to medical men are those near the end dealing with Dr. Harley's scientific and other hobbies. We do not in the least agree with his arguments in favour of a simplification of English spelling and we consider his views with regard to champagne to be as unsound in theory as in practice they are contrary to general experience; but we can at the same time appreciate the activity of mind which impelled him to make investigations for himself at first hand in so many by-paths of science. On the whole the book is well done, though Mrs. Tweedie should have been more careful in certain of her expressions lest she should be assuming for Dr. Harley a position as a scientific pioneer to which he has no right and which he certainly would never have claimed for himself. We point this out with reluctance because the feelings which have in a few passages betrayed her into a phraseology against which we must protest do credit to her affection. Such sentences as, "Medical science was literally groping in the dark when George Harley first came to London," "In the days when my father came to London anatomy and physiology were taught together," "The proof that spontaneous generation did not exist led my father's old friend Lord Lister," &c., "The discovery of anæsthesia also came prominently before the public in George Harley's lifetime," either mean nothing or they imply that the late Dr. Harley played a foremost part, not only in the evolution of scientific medicine—where some claim might be made out—but in the discoveries of antiseptic methods and of anæsthetics. Mrs. Tweedie we acquit of intentionally misleading her readers, but her book is written for the laity who might easily receive wrong impressions from her habit of grouping vast scientific developments (if only loosely) round her father's name. Nor do we like the expression "George Harley of Harley-street," the Christian name making the address unnecessary; while the statements that Dr. Harley chose the house in the street "because of family associations" and when medical men were scarce in the neighbourhood are not convincing. There were upwards of 20 medical men living in Harley-street a year before Dr. Harley went there. But we do not desire to lay undue stress upon the blemishes in taste or small errors in fact which have caught our attention in the perusal of a book that is pious in its aims and spirited in its performance.

[1] Auto-clinical Remarks on Injury to the Retina from Overwork with the Microscope, by George Harley, M.D., F.R.S. THE LANCET, Feb. 1st, 1868.

Manual of Operative Surgery. By H. J. WARING, M.S., M.B., B.Sc. Lond., F.R.C.S. Eng., Demonstrator of Operative Surgery and Surgical Registrar, late Senior Demonstrator of Anatomy, St. Bartholomew's Hospital; Surgeon to the Metropolitan Hospital, &c. Edinburgh and London: Young J. Pentland. 1898. Pp. xxvi.–661. Price 12*s*. 6*d*.

IT must always be a difficult matter to write a treatise on operative surgery which will prove satisfactory in every respect; for if the work be intended as a guide to the student in the operations which he performs on the cadaver it will hardly prove of much practical value to the operating surgeon. We must confess that the difficulties which we have indicated have been overcome in a very able manner by Mr. Waring and as a result we find a small volume which gives a complete account of all the operations which are usually performed by students in a course of operative surgery and in addition many operations are described which are practically never performed on the dead body; in fact, the work forms a complete manual for the student of the ordinary and of many of the rarer operations of surgery.

The first chapter contains an account of the preparations which the patient should undergo both with regard to asepsis and to anæsthesia. Then follows an account of the methods in which a knife should be held in making incisions through

the skin and other structures. An account is given of the various methods of suturing, but the "continuous suture" represented is hardly so useful as the "buttonhole" suture which holds together better the edges of the skin. We cannot concur in the opinion expressed that a "granny" knot is more liable to slip than a "reef." This is, indeed, what is usually taught, but experiment will readily show it to be erroneous. The reason for the preference shown by sailors for the reef knot is that it can be much more readily "upset" than the "granny."

The order in which the operations are taken may appear at first sight to be somewhat peculiar; it is that which is adopted in the practical classes in operative surgery at St. Bartholomew's Hospital and it has been found to be most useful when only a small number of bodies are available for operative surgery. After this explanation we need not feel surprise that the next chapter describes the operation upon the stomach and the intestines. Students often experience a difficulty in comprehending the method of application of Lembert's and other intestinal sutures, but no one could fail to understand after seeing the excellent diagrams which the author has supplied. The description of each operation, not only in this section but also in all the others, is preceded by an account of the chief indications for it.

It is difficult to say which part of the work is best where all is so good, but we are inclined to think that the chapter dealing with the surgery of the skull and brain is the most satisfactory of all. The account of the ligature of arteries in their continuity and the description of the amputations and excisions which are usually practised are clear. In speaking of excision of the shoulder, why does Mr. Waring call the anterior incision which commences near the top of the coracoid process the "external" incision?

Mr. Jessop has contributed a short chapter on Ophthalmic Operations which contains all that is needed by the ordinary student.

We consider that Mr. Waring has executed his task with much success and his work should prove a popular handbook of operative surgery for students, and to that end we heartily commend it.

LIBRARY TABLE.

The Practice of Surgery: a Treatise on Surgery for the Use of Practitioners and Students. By HENRY R. WHARTON, M.D., Demonstrator of Surgery in the University of Pennsylvania, Surgeon to the Presbyterian and the Children's Hospitals, and B. FARQUHAR CURTIS, M.D., Professor of Clinical Surgery in the New York Post-Graduate Medical School and the Women's Medical School of the New York Infirmary. Profusely illustrated. London and Philadelphia: J. B. Lippincott Company. 1898. Pp. 1240. Price 25*s.* net.—We do not remember to have seen hitherto any American work which so closely approaches the ideal text-book on surgery for students as does this book. The advances in surgery of late years have so enlarged the bounds of the subject that it is every year increasingly difficult to compress into one volume all the surgical facts with which a student or practitioner should be acquainted. We think that the authors may be congratulated on having produced a work which is readable and exact and in which the accounts of disease and injury are sufficiently detailed for the purpose for which the book is intended. A considerable degree of care has evidently been exercised in reducing to moderate dimensions descriptions of conditions and of treatment which would ordinarily have occupied many times the amount of space. The 923 illustrations are drawn from many sources, but the majority are original and many of them are striking. It is very characteristic of modern surgery that the first chapter of the book is devoted to an account of those bacteria which are of importance to the surgeon and, though somewhat brief, it is probably sufficient. It is obvious that 1200 pages of text must present many opportunities for discussion, but we have been surprised to find very few points indeed on which we are decidedly at variance with the opinions of the authors who have evidently striven to present the general current views on debateable points rather than their own personal opinions. The chapter on the Injuries and Diseases of the Eye has been written by Professor G. E. Schweinitz and it is fully as satisfactory as the rest of the book.

On Varix, its Causes and Treatment, with especial reference to Thrombosis. By WILLIAM H. BENNETT, F.R.C.S. Eng., Surgeon to St. George's Hospital and Joint Lecturer on Surgery in the Medical School; Member of the Court of Examiners of the Royal College of Surgeons of England, &c. Reprinted from THE LANCET, Oct. 15th, 1898, with the addition of Twelve Illustrations. 8vo. London, New York, and Bombay: Longmans, Green, and Co. 1898. Pp. 63. Price 3*s.* 6*d.*—This is a reprint of an address which Mr. Bennett delivered at the inaugural meeting of the Nottingham Medico-Chirurgical Society for the session 1898-99. It gives a very good account of a by no means unimportant subject and it is especially valuable as representing the personal opinions of the author on a diseased condition to which he has devoted much attention. Mr. Bennett considers that the causes of varicose veins may be divided into four classes; in many cases the varicose veins are congenital, and even when they are due to an obvious exciting cause, yet a congenital predisposition is extremely probable; in other cases obstruction of the blood-current by pressure brings about the varicosity; in a third class are the cases which follow a strain; and in the remaining cases the cause is thrombosis. The author gives several clinical histories which show strikingly the influence of severe strains in giving rise to varicose veins of the limbs. As to the treatment, Mr. Bennett lays great stress on the harm that may follow the use of ill-fitting elastic stockings; he tells us that he has known grave thrombosis to result. Operative treatment to be effective must include excision of a portion of the long saphenous vein a little above the knee so as to cut off the long column of blood in the valveless saphena. The author insists on the fact that a "cure" in the ordinary meaning of the word can never be promised even in the cases most suitable for operation, though much discomfort may be relieved and conditions dangerous to the integrity of the limb and possibly to life may be removed.

The Year-book of Treatment for 1899: A Critical Review for Practitioners of Medicine and Surgery. Illustrated. London, Paris, New York, and Melbourne: Cassell and Co., Limited. Price 7*s.* 6*d.*—This, the fifteenth, annual volume of the Year-book of Treatment is fully on a level with its predecessors, and in saying that we have said all that is necessary to those who have known earlier issues of this work. The Year-book of Treatment differs from most other year-books of medicine and surgery in that it confines itself to treatment, and it is in treatment that most medical practitioners feel that they need some assistance in keeping up with the ever-advancing tide of science. The impressive list of contributors to this volume must serve to show that the articles fully represent the most recent additions to our knowledge. Perhaps the most important section is that devoted to an account by Dr. Burton-Fanning of the Open-air Treatment of Phthisis. The copious indexes to authors and subjects add greatly to the usefulness of this valuable publication.

Travaux de Neurologie Chirurgicale. Revue Trimestrielle, dirigée par le Docteur A. CHIPAULT. Paris: Vigot Frères. 29 Figures. 96 pp. Price 4 fr. January, 1899.—Dr. Chipault's journal, which has hitherto been published once a year, now makes its first appearance as a "quarterly." It consists entirely of original articles, several of them of great interest. 1. Experimental Researches on the Methods of Trephining in Prehistoric Times, by Professor Capitan. 2. On a Case of Local Lesion of the Rolandic Region (adhesions from meningitis), by Professor Raymond. The lesion gave rise to Jacksonian fits, but they continued after removal of the affected membranes. 3. A Case of Traumatic Abscess of the Right Temporo-sphenoidal Lobe, by Signor Roncali. One abscess was evacuated, but the patient did not improve and after death two large abscesses independent of the first were discovered, one in the right frontal lobe and the other in the middle lobe of the cerebellum. 4. A Case of Intradural Resection of the Posterior Cervical Nerve Roots for the Relief of Neuralgia in a Painful Stump, by MM. Monod and Chipault. 5. On Deviations of the Cord in Pott's Disease, by M. Cestan. 6, 7 and 8. Treatment of Perforating Ulcer by Nerve-Stretching, by MM. Duplay, Finet and Soulier. 9. On the Instruments required for Excision of the Sympathetic, by Professor Jonnesco. 10. A Case of Myxoma of the Superior Cervical Ganglion of the Sympathetic found at the operation of removal of the sympathetic for the relief of epilepsy in a melancholic patient, by M. Chipault.

The Microscope. By JABEZ HOGG, M.R.C.S. Eng., F.R.M.S. Fifteenth edition. London: George Routledge and Sons. 1899. Price 10*s.* 6*d.*—When a book has reached its fifteenth edition it is difficult to find anything to say about it which has not been said before. The first edition appeared so long ago as 1854, when, as Mr. Hogg remarks in the preface to the present edition, the microscope was seldom or never employed in the laboratory or in the medical schools. It is needless to say how different matters are nowadays. The present volume, though greatly enlarged from the former ones, does not pretend to deal with medical microscopy except in so far that it gives an account of one or two of the better-known pathogenic bacteria, such as the bacillus anthracis and the bacillus pestis. But as regards a large portion of the other subjects with which microscopy deals it is a mine of information. The book is very well printed and is fully and admirably illustrated.

Sajous' Annual and Analytical Cyclopædia of Practical Medicine. Vol II.: Bromide of Ethyl to Diphtheria. Philadelphia: The F. A. Davis Company. Price 5 dollars.—The second volume of this admirable work has made its appearance. We noticed Vol. I. in THE LANCET of May 28th, 1898. In the present volume will be found articles which are practically monographs by such authorities as Professor Adami of Montreal upon Cirrhosis of the Liver; by Professor Lépine of Lyons upon Diabetes; and by Dr. William Browning of Brooklyn upon Cerebral Hæmorrhage. There is also an admirable and exhaustive article upon Diphtheria by Dr. Northrup and Dr. Bovaird of New York. We have selected these articles not in any invidious sense but simply because they happened to be the most striking and to deal with the better known diseases, but the volume contains information upon nearly every conceivable medical and therapeutical subject within the alphabetical limits assigned to it. One omission, we have noted, occurs in the article on Calcium in which under "Therapeutics" there is no mention of the use of calcium chloride in hæmorrhages and various forms of urticaria as studied by Dr. Wright of Netley. The printing, binding, and illustrations of this volume are as admirable as those of the first.

JOURNALS.

Scottish Medical and Surgical Journal.—In the opening article of the February number Dr. J. J. Graham Brown discusses the Symptoms, Pathology, and Prognosis of Diabetes. Mr. Rutherford Morison contributes an Abstract of Clinical Lectures on Gall-stones. A gall-stone, he says, is more serious than a urinary calculus and the operation for the removal of the former is as safe as that for the excision of the latter. Dr. Francis D. Boyd describes two cases of Regurgitation at the Pulmonary Artery. The diagnostic features are the location of the point of differential maximum intensity in the second interspace to the left of the sternum; the conduction of the murmur down to the left border of the sternum; the area of audition of the murmur being wide downwards and to the left, very limited upwards or to the right; and the absence of any such characteristic alteration in the pulse as is found in aortic incompetence.

Edinburgh Medical Journal.—In the February number Dr. F. W. N. Haultain publishes a retrospect of a first series of 110 Abdominal Sections for Pelvo-abdominal Disease, with two deaths. Dr. J. H. Ferguson describes the occurrence of repeated Ectopic Pregnancy in the same patient. An article on the Bacteriology of Typhus Fever has been noticed already in THE LANCET of Feb. 11th (p. 390).

Dublin Journal of Medical Science.—In the February number Dr. Alfred Smith gives a summary of a second series of Abdominal Sections—100 cases with two deaths. Captain W. J. Buchanan, I.M.S., writes on Cerebro-spinal Fever in India. Dr. H. T. Bewley describes a case of Chyluria in which filariæ could not be found in the blood. Dr. Patrick Letters continues his paper on Preventable Disease in the Counties of Cork, Kerry, and Waterford. He mentions that in England only 58 persons died from typhus fever in 1895, but that in Ireland there were 129 deaths from this disease in 1896 and 121 in 1897.

Birmingham Medical Review.—The February number opens with a practical paper by Mr. W. J. McCardie on Nitrous Oxide and its Uses, with especial reference to the advantages of a mixture of nitrous oxide and oxygen. He has administered such a mixture several times most successfully for a period of a quarter of an hour and once for 24 minutes during a plastic operation on the vulva. The other original article is Dr. E. W. W. White's Middlemore Post-Graduate Lecture on Inflammations of the Conjunctiva.

Mercy and Truth.—In the February number Dr. A. R. Cook gives some notes of a journey of 750 miles in the neighbourhood of the lakes which supply the Nile. On the way he had many patients and did various operations.

Medical Chronicle.—The original articles in the January number are: (1) Observations upon the Pathology of Intracranial Suppuration of Otitic and Rhinitic Origin, by Mr. W. Milligan of the Manchester Ear Hospital, and (2) a continuation of a paper on Fractures and Dislocations of the Upper Extremity, by Mr. J. E. Platt, late resident surgical officer to the Manchester Royal Infirmary.

Monist.—A paper with the heading "Vitalism" in the January number is an examination from a metaphysician's point of view of Professor Japp's Presidential Address delivered before the Chemical Section of the British Association in 1898. The writer is Professor C. Lloyd Morgan of Bristol who takes up the position that "if by Vital Force we mean the noumenal Cause of the special modes of molecular motion that characterise protoplasm, its metaphysical validity may be acknowledged, so long as it is regarded as immanent in the dynamical system and not interpolated from without in a manner unknown throughout the rest of the wide realm of nature."

New Inventions.

THE AUTOMEASURE (KEMPER-SALOMON).

THE accompanying illustrations show an ingenious measuring device in its application to a medicine bottle. Its construction is quite simple. It consists (Fig. 1) of a glass tube shaped somewhat like a funnel. It is closed at the top by a tightly fitting cork containing a rubber valve kept in position by means of a spring. On depressing the valve with the finger air may enter into the glass tube. The capacity of the tube which we examined was one teaspoonful. It is used in the following way. The tube is fitted to the neck of the medicine bottle (Fig. 2) by means of a cork collar. On inverting

FIG. 1.

FIG. 2.

the bottle the tube fills with the liquid. On restoring the bottle to its original position the liquid remains in the glass tube. It is then detached from the bottle and on depressing the valve with the finger exactly a teaspoonful of liquid is discharged. It should be very useful for the purpose and is further an important introduction since it effects accuracy and uniformity of dosage. It removes the objection of using teaspoons for the purpose which, varying in size, give different doses. It is very convenient to use and cleanly. The specimens which we examined were submitted to us by Mr. Richard Hilgers, Old Trinity House, 5, Water-lane.

CLINICAL OZONE APPARATUS.

THE employment of ozone as a gaseous antiseptic and in diluted form—that is, mixed with air for inhalation purposes—is now well known. The convenient production of pure ozone is therefore of importance. The device about to be described is an ingeniously designed generator which yields ozone with a comparatively mild current of electricity without being contaminated with irritating oxynitrogen compounds. Its construction provides for the silent discharge of the current from the induction coil. The inner glass tube is packed with small copper turnings while outside the tube is wound a spiral of copper wire upon which are strung beads of glass and steel alternately. This tube gives a steady and uniform yield of ozone when the current is passed in the presence of air. Tubes are thus constructed for inhalation and for the treatment of suppurating surfaces. For the latter a kind of ozone pencil is used, so that the action of the issuing ozonised air may be localised, air being blown in at one end. For the ozonisation of the air of a sick room or a ward a battery of these tubes is enclosed inside a cardboard barrel. At one end a fan is placed which may be driven by a motor actuated by the same current. The effect of this apparatus when working is very agreeable upon the air of the room, giving it all the impression of freshness and removing disagreeable odours or that sense of stuffiness which characterises ill-ventilated apartments. With convenient forms of apparatus like the foregoing the application of ozone in disease, sickness, and for other purposes should be given greater trial than has hitherto been the case. The inventor, Mr. Lamprey of Brockley, has devoted considerable time and energy to the design of ozone apparatus suitable particularly for the production of ozonised air for sick rooms or for the wards of the hospital. He finds that ozonised air is extremely useful as a deodorant of fœtid discharges or evacuations.

"SUGAR-FREE WINES."

LAST week a correspondent inquired whether sugar-free wines could be obtained and if so where. We think the following results taken from the "Analytical Records from THE LANCET Laboratory" of the past few years may afford some generally useful information on this point as to spirits, wines, and beers. We may add that we have never found champagne, claret, or sherry to be absolutely free from sugar. Several specimens examined, however, contained, as will be seen, an almost negligible quantity.

	Sugar per cent.
Champagne (sans sucre), Hertz and Collingwood, 17, Billiter-street, E.C.	0·2
Californian Wines, Hague, Smith, and Co., 6, Dickinson-street, Manchester:—	
Burgundy	0·15
Claret	0·14
Australian Wines, P. B. Burgoyne, 6, Dowgate-hill, E.C.:—	
Burgundy	0·28
South Australian Wines (Orion Brand), E. Burney Young, 35, Walbrook-street, E.C.	
Cabernet	0·14
Burgundy	0·16
Reisling	0·20
Dry Imperial Champagne (sans sucre), Moët and Chandon	0·65
Cider, Gaymer and Son, Attleborough, Norfolk	0·7 to 2·12
Pale Ale, Harvey and Co., Pellon Brewery, Halifax	None.
Anti-Diabetic Non-acid Whisky, Back and Co., Devonshire-square, Bishopsgate-street, E.C.	None.
Anti-Diabetic Whisky, J. Dewar and Sons, 48, Lime-street, E.C.	None.
Spanish Sauterne, P. Otaduy and Co., 20, High Holborn	0·31
Rioja Red Wine	0·10
Vibrona Champagne, Fletcher, Fletcher, and Co., Holloway, N.	0·13
Vibrona Sherry	0·20
"Fino" types of sherry as analysed by THE LANCET Commission on Sherry, *vide* THE LANCET, Oct. 29th, 1898	0·18 and 0·21
Italian wines, E. Vitali, 5 and 6, Great Winchester-street, E.C.:—	
White wine	0·11
Chianti	0·17
Barolo	0·13

THE NEED FOR MALE NURSES.—At a meeting of the York Home for Nurses held at York on Feb. 13th Mr. W. Draper made some remarks which are worthy of consideration. He was of opinion, he said, that as far as possible male patients should be nursed by male nurses. It was quite true that when men were laid on their backs with sickness they were under "petticoat government," and under existing conditions were glad enough to be so; but, without fear of contradiction, by far the majority of men, he thought, would much prefer to be nursed by well-trained and capable nurses of their own sex. Take for instance the sensitive, delicate-minded elderly gentleman who had of necessity perhaps to be suddenly handed over to the absolute care and dependency of a female nurse of 25 or 27 years. Must it not be repulsive to him, to say the least? Or take again the nervous, bashful youth of from 15 to 20 years. Was not the distress of his illness, at all events at first, much increased in consequence of the necessary offices of his watchful female attendant? Would ladies like to be nursed by men? In the army and navy the nursing was done by medical orderlies or sick-bay men and well done too. Indeed, he did not hesitate to say that some nursing duties might be better performed by men than by women. In these days there should be no difficulty in obtaining the services of plenty of temperate, respectable, and sufficiently educated young men who would be willing to go through a proper course of training in hospital and then to qualify themselves as efficient male nurses. He trusted that the time was not far distant when every nursing institution of importance would have its branch for male nurses.

THE LANCET.

LONDON: SATURDAY, FEBRUARY 25, 1899.

THE War Office authorities are, we think, to be heartily congratulated on having decided to establish a system of Army convalescent homes and the *Morning Post* is also to be congratulated on the result of its keen and strenuous advocacy in endeavouring to bring about such a reform. As far as the Army regulations are concerned the soldier has been hitherto regarded as sick or well; he was supposed to be in hospital if sick and to be fit for duty if well. There was no intermediate stage between the two and if sick or disabled soldiers were unlikely to become fit for the discharge of their military duties within a reasonable time they were supposed to be brought before a medical board and invalided. We do not mean to say that these regulations were always strictly carried out or acted upon, nor could they be. Practically speaking arrangements were commonly made for allowing soldiers either to proceed on sick furlough or for giving them light duty on discharge from hospital or during convalescence or sometimes no duty at all until their health was re-established. It was always, of course, within the power of medical officers to make recommendations to that effect which were almost invariably acted upon. Still, the system was not only attended with evils and occasionally disciplinary difficulties, but it was an unsatisfactory and, in a number of cases, very inadequate way of attaining the object in view. It is, indeed, impossible to lay down officially any arbitrary limits in regard to the recovery or otherwise of sick and injured soldiers because these would be so frequently opposed to nature's laws and methods. Everybody—most of all physicians and surgeons who have to deal with sick and injured patients—must recognise that after any long or acute, or even after any ordinary, case of illness recovery does not occur at once: there is almost always an interval during which the patient requires more or less time, together with some outdoor exercise altogether away from and outside the walls of a hospital, before his health is really re-established. In many cases, moreover, a more or less prolonged period of rest, good and careful dieting, and beneficial climatic effects may be absolutely necessary to ensure a patient's recovery. The provision of sanatoria at suitable stations will place these within the soldier's reach and may make all the difference between his return to duty on the one hand and his being invalided and altogether lost to the army on the other. What this loss amounts to in the aggregate we have no means of estimating but that it is large there can be no doubt. A system of sick furlough must obviously often be attended with many hardships and evils both to the sick soldier and to his relatives or friends—to the former from want of proper and skilled care and attention and the exposure to various temptations, and to his friends and relatives, when these are in needy circumstances, as they so frequently are, in subjecting them to a burden which not they, but the State, should be called upon to bear—to say nothing of the injurious effect which it exercises on the popularity of the Army. Many of our large civil hospitals have sanatoria or convalescent homes in connection with them; and so have continental armies. It cannot be too emphatically stated that the nation owes it as a duty to its sick and wounded soldiers to see that they are well cared for. It is nothing less than a national scandal that soldiers suffering from diseases and injuries attributable to their military service and of an intractable and possibly fatal character should not receive all reasonable consideration, instead of being weeded out of the army to swell the mortality-rate of the civil population.

We hail, then, this new policy of the State as regards the Army, in the establishment of convalescent homes for sick and disabled soldiers, as a much-needed reform and a very wise and humane step in the interest of all concerned. The convalescent soldier under the proposed scheme is to be drafted to barracks in stations where the situation and climate may appear most fitted to hasten his recovery. He is to be relieved of military duty and to be afforded facilities for the restoration of his lost health and strength. The experiment will be started in nine or 10 centres, to be selected according to their climatic recommendations, and it is hoped that it may be carried out during the ensuing summer. Barracks at Scarborough have been already utilised for the purpose and similar institutions will be soon started at Sandown, at Shorncliffe, and at Yarmouth. Existing buildings will be employed as far as possible and the other localities contemplated in the War Office scheme are Pembroke Dock, Tynemouth, Fleetwood, Ayr, and Aberdeen. It is to be hoped that as the scheme becomes further developed inland resorts, and some on elevated sites, will be selected, because seaside stations are not invariably the most suitable climates for patients who have suffered from tropical or subtropical diseases.

IT is gratifying to find that in the United States of America the wholesome dread of undue developments of narrow specialism corresponds closely with the similar feeling which prevails in the United Kingdom. It is somewhat humbling to see the work of the medical profession broken up into bits as though the body were not one and indivisible or as if one portion of it could suffer in a splendid isolation from the rest. The illustrations of this evil are familiar to everyone and are sometimes conspicuous in regions where one would rather expect larger views of duty and disease to obtain. Thus, for instance, we find inspection of the mucous membrane of the larynx without examination of the chest; fanciful or slight diseases of the uterus or ovaries specially and gravely treated without reference to the general constitution of the patient; hæmorrhoids ligatured where malignant disease of the liver is beginning its fatal inroads on life; and all sorts of grave operations performed where there exist clear indications of the presence of fatal general conditions of which the local disease is but

the climax. To speak generally the tendency is to take a local view when everything depends on a broad and general view of the facts of the case. The worst of it is that there is much in this specialisation of medical work which is agreeable to the patient and to the public. The patient is gratified to have his disease duly labelled and localised and there is even sometimes satisfaction to him in the notion of having it dealt with surgically. Moreover, there is comfort to him in the consideration that according to the specialists' theory the disease is confined to one part, that it may possibly admit of simple excision, or at any rate be carefully confined to its existing limits and treated by new-fangled and merely local remedies. The public, too, is taken by this view of specialism. It accords strangely with its own crude notions of disease—notions which have been fed by ages of ignorance and quackery. It is obvious that the belief of the public in an ever-increasing specialisation of disease or rather of therapeutics is one of the strongest reasons for suspecting the truth of the whole doctrine and all the pretensions on which it thrives.

We began by saying that the same wholesome dread of specialism which obtains largely in the profession here obtains equally in the best-informed sections of the profession in the United States. We have before us an address on the Dangers of Specialism in Medicine by Dr. J. BULKLEY, physician to the New York Skin and Cancer Hospital and consulting physician to the New York Hospital. The address was delivered last year before the American Academy of Medicine by Dr. BULKLEY in his capacity of President. He is himself, it will be seen, a specialist, but with a difference. The Academy of Medicine over which he presides represents the educated medical opinion of the United States. He expresses himself as thankful that owing to his not securing so early as he wished in life an appointment to a skin department he was thus driven to the study of general ailments. We are naturally concerned therefore to ascertain his views as to the legitimate place for specialisation in medicine, the dangers which attach to it, and the way in which these dangers may best be averted. He freely admits the uses of specialism and, indeed, that it is inevitable since the science and art of medicine in company with other sciences and arts have become so vast and extended that no one mind is capable of fully understanding every portion of it or of practising in every line in the best manner possible. But withal he maintains that specialism is often cultivated and practised in a way which brings it and the whole science and art of medicine into discredit. He enumerates several causes which contribute to this evil growth A fundamental evil lies in the desire of many young men to find short cuts to success and wealth by blazing out into sudden fame as specialists without any adequate general study of medicine in all its departments. They are impressed with the success obtained by a few "ornaments of the profession" who after long years of general study and practice have concentrated their mind on certain diseases or sections of practice and attained to eminence. They are tempted to take up special work without laying the foundation in deep and general knowledge of medicine. Sundry circumstances in the present organisation of the profession favour their vanity. Amongst these Dr. BULKLEY specifies the excessive multiplication of cheap medical periodicals, with such a demand for literary material that there is no difficulty in securing publication for all articles "however trashy." The multiplication of medical societies is liable to a similar objection and favours the acceptance of papers and discussions more likely to advance individual interests than scientific objects. Medical colleges, too, are apt to multiply special chairs without having any thoroughly qualified persons to fill them.

The remedy suggested by Dr. BULKLEY—one in which all who have the interest of the profession at heart will concur—is the more complete general education of the specialist and the more thorough study of the whole range of medical knowledge as a basis for special practice. The specialist should grow out of the general practitioner and should bring his ethical views of practice into harmony with those which for generations have guided the conduct of medical men. The more a specialist isolates himself and claims a right to act independently of the judgment of his fellow practitioners the more is he to be regarded with distrust by the profession and the public alike. The profession can best control the growth of the evil forms of specialism by recognising only those specialists whose reputation has developed legitimately. They may be helped in their selection by Dr. BULKLEY'S words: "The specialist should be a good physician *plus* the particular knowledge of his specialty, or, as someone has put it, he should know something of everything and everything of something."

THE Government, as we anticipated, have taken the earliest opportunity to introduce their Bill to give facilities for the inter-communication of the metropolitan water companies' mains. In introducing the Bill on Tuesday last Mr. CHAPLIN gave an outline of its provisions. The metropolitan water companies under the direction of the Local Government Board are within a certain time to submit schemes for the construction of the works necessary to carry out inter-communication between their mains and it is provided that in the case of an emergency the companies are to supply "at a reasonable cost, and to such extent and during such periods as the Board may direct, such water as may be required for the need of any other metropolitan water company and as may be available after satisfying the requirements of their own districts." This provision is a new departure in the treatment of the London water companies. Parliament has on previous occasions legislated concerning the charges which may be levied with regard to the sources from which water may be taken and with regard to details of the supply. The legislation has been partly by private Acts, each of which as a rule affects one company only, and partly by public Acts which apply to the whole of the metropolitan district. Up to the present time, however, there has been no legislation giving power to the Local Government Board or to any other body to interfere between one water company and another. We do not see that the metropolitan companies can reasonably object to the Government measure on this point because in the Bill which they themselves have already brought in similar provisions are made. It is not, however, on that account less worthy of remark that in giving the power of

direct interference between the different companies to the Local Government Board the Government is taking a perfectly new departure in legislative proposals for dealing with water companies.

Mr. CHAPLIN said that his Bill provided that the cost of construction should be borne by the several companies according to their respective water rentals and the terms upon which the water should be supplied were to be settled by agreement or by arbitration. To carry out the necessary work certain statutory impediments which at present exist are to be removed by the Bill. This provision, again, is on exactly the same lines as the Bill promoted by the metropolitan water companies. Mr. CHAPLIN explained further that the Local Government Board would be empowered to fix times within which schemes were to be submitted and the works constructed. With regard to the way in which the money is to be raised to carry out the work Mr. CHAPLIN explained that the Government has adopted the recommendation of Lord LLANDAFF'S Commission. This recommendation is contained in Section 37 of their first report and is as follows:—

"It was contended before us on behalf of the companies that inasmuch as the money raised by issuing the debenture stock could not yield revenue or profit to the companies, the sinking fund clauses, which are founded on the assumption that debenture capital is expended so as to produce revenue and profit, were not applicable. We think that there is force in this contention and that this debenture stock might be exempt from the obligations of the sinking fund clause."

Should this recommendation be adopted in its entirety it will, of course, be of great advantage to the water companies and a corresponding disadvantage to the London ratepayers and water consumers. Mr. CHAPLIN also explained that the Bill contained provisions under which, in case of purchase of the undertakings of the companies at any time within seven years of passing the Act, the companies would not be able to derive any increased allowance for advantages which they might obtain under this Bill.

We defer criticism of the details of the Bill, but we congratulate Mr. CHAPLIN on having so promptly brought forward a measure the principle of which ought in the public interest to be made effective by legislation as speedily as possible.

Annotations.

"Ne quid nimis."

THE SICK AND WOUNDED IN EGYPT.

ON Feb. 16th Mr. Wyndham replied to a question from Captain Norton in the House of Commons dealing with the alleged inadequate provision made in Egypt for the requirements of the sick and wounded returning from the late Nile campaign; and more especially with regard to the failure of the War Office to comply with the application of the medical service in June for a hospital ship, which was renewed in the following September by the general officer commanding in Egypt. The reply of the official representative of the War Office was, however, considered to be so unsatisfactory and inadequate that it called forth a communication from Colonel Lonsdale Hale in the *Times* of Feb. 21st, in which the action of the War Office is so adversely criticised and commented upon as to amount to a grave indictment against the Government. A question was again put by Captain Norton in the House of Commons to the Under Secretary for War on Feb. 21st respecting the unofficial application for a hospital ship by the general officer commanding and the principal medical officer of the army of occupation in Egypt in June last, and as to the nature and extent of the hospital accommodation and nursing staff provided at Cairo and Alexandria to meet the necessarily increased requirements caused by the engagements at Atbara and Omdurman. It appears from the reply of the Under Secretary for War that no steps were taken on the receipt of the intimation in June to fit out a hospital ship and to hold it in readiness to proceed to Egypt in anticipation of the expected renewed application, which came by telegram from the general officer commanding in Egypt on Sept. 14th—too late then to be acted upon. One thing is certain: no hospital ship was available at Alexandria although the medical regulations expressly provide that one is to be supplied under such circumstances, and no warning, unofficial or otherwise, was consequently necessary. Nevertheless, it was unofficially asked for in June by both the medical service and the general commanding, but no steps, as we now learn, were taken to comply with their request. We can only suppose that the explanation has to be sought for in the desire to "run the campaign in Egypt on the cheap" and that the Horse Guards' advisers of the War Office may probably regard the provision of a hospital ship for the Nile expeditionary force as a kind of "fad" of the medical service. That, in addition to the wounded, a large amount of sickness—of enteric fever especially—would follow on the conclusion of the campaign was about as certain as anything can be in war and just what all our previous experience in Egypt had taught us to expect. If the medical service or its authorised regulations had been to blame in this matter we should certainly have heard of it. We quite agree with an observation quoted in Colonel Lonsdale Hale's letter: "If £1000 of the money spent in booming the Sirdar in Egypt had been spent for the sick of the British division between 100 and 200 soldiers would have been alive now instead of lying in cemeteries in Egypt." We question, too, whether tents afford suitable accommodation for cases of sickness during September in a climate like Egypt. We hoped that this sort of parsimony had received its death-blow in the Crimea.

THE GOLDSMITHS' COMPANY'S GRANTS IN AID OF SCIENTIFIC RESEARCH.

THE Goldsmiths' Company has done much for scientific research and the thanks of the whole scientific world are due to its members for their generosity. A report has just been issued by the clerk of the Company explaining in a few words the advance which has been made in the laboratories of the Conjoint Board of the Royal Colleges of Physicians of London and Surgeons of England under the grant of £1000 made by the Company in 1894. The results obtained may be summed up thus: 1. Improvements have been made in the method of preparing diphtheria antitoxin which is now produced more rapidly and of much greater strength than was formerly possible. The more potent antitoxin is of great value in the treatment of diphtheria. A larger number of antitoxin units can be given in the same quantity of serum and thus there is far less immediate discomfort to the patient and its use is less often followed by rash and pains in the joints. It is much more convenient for transport and injection and, lastly, larger doses of antitoxin may be given because it is contained in a less quantity of serum. 2. The antitoxin value of serum is now easily

ascertained and a permanent standard has been reached and kept preserved. 3. Some knowledge of the structure of toxins and antitoxins has been acquired and inquiries into the action of the several constituent parts of the substances is still being carried on. 4. Large quantities of strong antitoxin (about 13,000 doses) have been distributed to be used in the cases of poor people and hospital patients, many of whose lives have thus been saved. In consequence of this report the Company has made a further generous grant of £500 to the Conjoint Board. Such open-minded action cannot be too highly praised and the thanks not only of the medical profession but also of the public generally (although, perhaps, unconsciously given when members of families have recovered from diphtheria after use of the antitoxin) should be accorded to this great historical Company. We further congratulate its members on having shown the courage of their opinion in spite of a band of unscrupulous agitators who, heedless of truth and reason, are prosecuting their cause with all the blind impetuosity of ignorance and misplaced sentimentality.

INCREASE OF ALCOHOLISM IN FRANCE.

DR. JACQUET of the Hôpital Saint Louis, Paris, is leading an active campaign in the hope of checking the ever-increasing consumption of alcohol in France. It appears, if we may trust the vigorous denunciations made by Dr. Jacquet, that our French neighbours whom we have always considered a sober people in comparison with ourselves, in reality consume a greater quantity of alcohol than do our countrymen. This discrepancy may be explained by the fact that whereas English people drink to excess occasionally Frenchmen take less at a time but they drink more constantly. There are fewer drunkards but there is much more alcohol consumed. Dr. Jacquet, however, protests that it is a mistake to believe that alcohol taken in small quantities but in frequently repeated doses is not injurious. On the contrary, these careful, sober people become alcoholic so gradually that they cannot perceive the injury which they have done to themselves till it is too late. The man who is never intoxicated but who is constantly consuming small quantities of alcohol is in greater danger than the person who occasionally drinks to excess. It is at the Hôpital St. Louis that Dr. Jacquet has been lecturing on this subject to audiences consisting of medical students, trained nurses, journalists, and other persons who take a serious interest in social questions. That the question of alcoholism is becoming more and more urgent in France cannot be denied. Other countries are improving, but in France matters are going from bad to worse. The consumption of pure alcohol at 100 hydrometer degrees is now equal to 2,000,000 hectolitres, and as the alcohol consumed is on an average at 40 hydrometer degrees this is equal to 5,000,000 hectolitres of ordinary alcohol. The consumption of pure alcohol in France was estimated at one and a half litres per head of the population in 1850. In 1896 this average had increased to 4·19 litres. But if to this the alcohol consumed in wines, beers, and cider is added the average consumption of alcohol at 100 hydrometer degrees is equal to 14 litres per annum for every man, woman, and child in the country. Apparently this figure is not reached by any other country. In Belgium the consumption is only equal to 10·50 litres, in Germany to 10 litres. England comes next on the list and Sweden with only five litres comes last. While in France the consumption has increased so also have the facilities for drinking. In 1830 there were 280,000 drink-shops, cafés, &c., and in 1896 these had increased to about 500,000. There is now one drink-shop for every 30 adults of the population. In the department of the Eure there is one drink-shop for every 11 inhabitants—that is to say, for every three adults. But these figures only deal with what is described as official alcoholism; there is a great deal of clandestine alcoholism which escapes the control of public statistics. The most wonderful contrast is that set forth between France and Sweden. In the latter country the annual consumption of alcohol was equal to 23 litres per head during the years 1830 to 1834, and in those three years 59 murders were committed. During the three years from 1875 to 1878 only five litres per head per annum of alcohol was consumed and there were only 18 murders committed. Such are some of the facts which Dr. Jacquet is striving to impress upon the French public. Perhaps, however, he somewhat spoils his case by going to extremes. The strength of the French temperance movement is due to its moderation. It does not fly in the teeth of the history of humanity. It does not deny that pure wine is wholesome and even beneficent, but it insists on the necessity of purity. Hence the French temperance advocate wages war against alcohol, especially manufactured alcohols—namely, alcohols which are not distilled from wine—but he allows the consumption of what are now termed hygienic drinks, that is to say, unsophisticated wine, beer, and cider. Still even Dr. Jacquet does not advocate absolute abstinence. He urges that no one need take alcohol and that we gain in vigour and strength by abstaining from alcohol. Wine, beer, and cider stimulate energy but should be taken in strict moderation, and it is, he maintains, absolutely false to say that wine gives strength. Dr. Jacquet exhibits lantern slide representations of persons suffering from alcoholism and shows specimens of human degeneration due to excess in drink. As the general daily papers in Paris are beginning to notice these lectures they should produce a wholesome effect.

MEDICAL OFFICERS OF HEALTH AND THEIR POWERS.

MEDICAL officers of health rightly possess powers to examine and report upon milk and other food-supplies, but at the same time they must use the utmost reserve as regards suspicions which they may have concerning certain farms or shops until certain and reliable information has been obtained, otherwise purveyors of milk or other food-stuffs may sustain great but unmerited harm. A case of this kind was recently tried before Judge Ingham at the Warwick County Court. An action was brought by Mr. Geo. Cashmore, dairyman, of Leamington, to recover £50 9*s.* 10*d.* from Dr. Samuel Browne, medical officer of health of Leamington, for circulating a certain report to the injury of the plaintiff's business. It was alleged that early in June last four cases of typhoid fever occurred in Leamington and by a coincidence the families affected were all supplied with milk by the plaintiff. Dr. Browne went to the plaintiff's dairy to examine it and took a sample of milk and was overheard to instruct the sanitary inspector to ask Dr. Bostock Hill, the public analyst, to look out particularly for typhoid germs. He did not inform the plaintiff of the result until he was asked and then admitted that no typhoid bacilli had been found. Plaintiff then asked him what compensation he was to have for injury to his business and Dr. Browne was stated to have replied that he had it in his power to ruin him as he had done in the case of another milkman. It was also alleged that Dr. Browne had told a gentleman whose daughter was suffering from typhoid fever that the milk was not fit for use and that he must throw it down the drain. It was admitted, however, that he afterwards informed the same gentleman that he could safely use the milk again and that he might write to the plaintiff to that effect. Dr. Browne denied that he had exceeded his official duty as a medical officer of health. He simply advised the families affected not to use milk until it had been tested.

The plaintiff in angry terms demanded compensation and he referred him to the Health Committee of the Town Council. He then became abusive. Under these circumstances he reminded plaintiff of his powers as a medical officer and told him that under the Act he could prevent him from selling milk and that this would ruin him. The judge said he was bound to say that the defendant had only tried to do his duty as medical officer of health and the claim must therefore be dismissed. At the same time he regretted very much that, however insulting Cashmore might have been, Dr. Browne should to redress a private wrong have threatened him with the penalty which he could have inflicted only by virtue of his office as medical officer of health.

FOOD ADULTERATION.

MR. LONG'S reply to a deputation of the Federation of Grocers' Associations last week encourages the hope that the Bill to be brought in by the Government will be both comprehensive and useful. We learn with satisfaction that dairy products are not to be treated separately but that all articles of consumption are to be included in a broad measure on the subject of general adulteration. Mr. Long assured the deputation that in any proposals to Parliament the Government would do nothing calculated to harass the great interests represented by the deputation or interfere with any properly conducted trade. Mr. Long evinced a singularly clear grasp of the position. He maintained that all that the public were entitled to ask for was that the articles should be sold for what they were and not for something else. If it could be shown that the law was not strong enough or wanted improvement in administration the country was entitled to have it. These are exactly the sentiments which we have expressed again and again in these columns. It is to be hoped that Parliament will accept a measure which will largely reduce, if not put an end altogether to, adulteration and fraud without hampering legitimate and honest dealing.

A UNIQUE CASE OF PSEUDO-HERMAPHRODITISM.

IN the *Centralblatt für Gynäkologie*, No. 5, 1899, Dr. Franz Neugebauer records a very interesting case of pseudo-hermaphroditism. The patient was a Jewess, 27 years old, who seven days previously had been confined at full term of a normally developed child. She was a well-developed, red-haired person of feminine appearance. The voice, the distribution of hair, and the breasts were all of the female type, and to outward appearances there was nothing at all suggesting the male sex. On examination of the genitalia the mons Veneris, the vulva, the labia, and the clitoris were normal. Situated about one centimetre behind the frænulum pudendi almost in the middle line of the perineum was an organ some 45 millimetres in length bearing a close resemblance to a penis. It was capable of becoming erect and swollen and of attaining a length of about 50 millimetres. It had all the appearances of a penis with a clearly distinguishable glans, incompletely covered by a prepuce. The skin covering it was wrinkled and folded like that of the penis of an old person, the folds, however, partially disappearing when erection occurred. The long axis was directed upwards, while the extremity was somewhat hooked and bent downwards like that of a hypospadiac penis. The meatus urinarius was represented by a small dimple, no trace of any opening being discernible. Two corpora cavernosa were apparently felt, of which the right but not the left could be traced to the ramus of the pubic arch. During erection the organ attained a size of about the thickness of the little finger, and this condition was accompanied by sexual excitement on the part of the patient. Nothing abnormal could be felt by the rectum and the labia majora were empty. A vaginal examination was not made, but there can be little doubt that the uterus and ovaries were present, seeing that the patient had just passed through a normal confinement. It was impossible to determine with certainty whether some of the folds of skin covering the abnormal body, especially at its base, did not represent a rudimentary scrotum. Unfortunately the patient was lost sight of owing to her having taken a situation as a nurse, and the operation for removal of the organ which had been recommended to her was not carried out. The question, therefore, as to whether the structure represented a rudimentary penis or a hypertrophied abnormally sensitive clitoris remained unsettled. Dr. Neugebauer has collected 37 cases of doubling of the external genitalia. Of these 28 had a double penis, three had a double vulva, and six had bisexual duplication; in none of the latter cases, however, has any post-mortem or histological examination been carried out. By most authorities the possibility of the occurrence of bisexual duplication of the external genitalia is denied, and the present case cannot be quoted as any proof of its occurrence seeing that the organ may well represent a hypertrophied clitoris. The case is, however, a unique one of its kind and it is to be regretted that Dr. Neugebauer was unable to carry out a further investigation of the interesting structure, such as might have enabled him to find some explanation of it extraordinary situation.

DEATH UNDER CHLOROFORM.

THE patient, a girl, aged two years, suffered from broncho-pneumonia and right-sided empyema. Although in a bad state there was nothing in her condition at the time of her admission into the Leicester Infirmary to fear immediate danger to life, but she grew worse and her breathing became much laboured. It was therefore determined to remove the pus by operation as aspiration had failed to relieve the condition. Chloroform was given by the assistant house surgeon, to whom we are indebted for the notes of the case. It was given by the "open method," small quantities being poured on lint and "freely diluted with air." The child was lying on her back and was never turned to the sound side, so that pus could not gravitate into and choke the left lung. Full surgical anæsthesia was successfully obtained and the operation was about to be commenced when the child ceased to breathe and died in spite of all restorative measures—artificial respiration, inhalation of oxygen, hypodermic injection of strychnine, and inhalation of nitrite of amyl. The administrator, who claimed an experience of 1000 administrations of anæsthetics, states that the child gave 10 or 12 "voluntary" gasping respirations before she succumbed. The extreme danger and difficulty of giving anæsthetics to patients suffering from empyema is well illustrated by this case. In general we prefer the use of the A.C.E. mixture when there is not too much bronchial irritation. In the present instance the case appears to have been complicated by the presence of broncho-pneumonia so that possibly the mixture would have failed. If the report which states that "full surgical anæsthesia" was obtained is to be taken literally we should join issue with the wisdom of such a practice as there can be little doubt that the "second degree" of Snow is the safest and is quite sufficiently deep for the proper performance of the operation. There is absolute analgesia and if the patient is restless he is never so much so as to interfere with the surgeon. Again, "artificial respiration" as performed by the Silvester system is a great source of danger to those apparently dead from chloroform when any fluid is in the lungs. Either the system of Marshall Hall should be carried out or the bronchus of the sound lung should be catheterised and

inflated with care by means of bellows. It would be of interest to learn whether any necropsy was performed (we may add parenthetically that in every case of a death under an anæsthetic a careful post-mortem examination should be made) and if any pus was found in the bronchi of the left lung.

A RUSSIAN SURGEON ON CLEANSING OF THE HANDS.

DR. CIRIKOW formulates his ideas regarding disinfection of the hands to the following effect in a recent number of *Vratch*. 1. Cleansing of the hands by mechanical means. Cutting the nails short, clearing the subungual spaces in the usual way, rubbing with a hard brush, green soap, and warm water during 10 minutes; all this does not give a satisfactory result. From subungual matter and from the produet obtained by scraping the palm and the interdigital regions it is still possible to cultivate colonies of bacteria. 2. Placing the hands in a 2½ per cent. solution of formol for a period of three minutes will not suffice for disinfection, even though the measures just enumerated have been previously adopted. 3. Neither a solution of permanganate of potash nor a 1 or 2 per cent. solution of corrosive sublimate, whether hot or cold, can be relied upon to yield better results than are to be obtained by milder antiseptic methods. 4. The hands will beyond all doubt be disinfected if cleansed by mechanical means during three minutes, followed by brushing with a new brush in 95 per cent. alcohol during three more. When thus treated they will even remain aseptic after steeping in hot water during 12 minutes, or after four or five minutes of perspiration. Alcohol should never be used under 80 per cent. and even at that degree the results are only semi-satisfactory. 5. Wood spirit at 92 per cent. is very cheap and gives excellent results. 6. The thread gloves used by Mikulicz have little value. The experimenter's hands were first plunged into a liquid containing a little pyocyanic broth. He then put on the gloves and after from three to five minutes numerous bacteria were found in the fluid with which they had become impregnated. 7. Dr. Cirikow is at present engaged in an examination of the gloves which have been proposed by Friedrich.

"QUACKS AND ABORTION: A CRITICAL AND ANALYTICAL INQUIRY."

A FEW weeks ago in one of our articles published under the heading of "Quacks and Abortion: A Critical and Analytical Inquiry" we predicted that owing to the prosecution of the Chrimes brothers the advertisements to which we called attention in detail would disappear for a time from more or less respectable papers at all events, but would probably recur. We confess that we did not expect to find them distributed broadcast again even in the more disreputable papers of London and the provinces so soon after the publicity given to the subject by the prosecution referred to and by our articles. We have, however, before us fully 100 newspapers published during one week of the present month in Great Britain in which occur the advertisements of persons of whose pretensions to procure abortion by means of drugs there can be no question, while over 50 of these papers contain the advertisements of quacks with whom we dealt in our articles, publishing their names, their correspondence, and the analysis of their wares. Strange to relate, in one paper, the *Orcadian*, published at Kirkwall, we find the well-known advertisement of the Chrimes brothers still appearing. They are presumably expiating their misdeeds at Wormwood Scrubbs, previously to their removal to penal servitude, while miserable women in Kirkwall and its neighbourhood are being incited by their specious promises to send postal orders to H. B. Montrose of Ludgate-circus where "the highest professional advice always free" is promised with the removal of the "most obstinate obstructions." Let us hope that, whatever else the police may do or not do, at any rate they have officially notified to the Post Office the conviction of the Chrimes brothers and that the letters and money are promptly returned to their senders without the form of attempting to deliver them being gone through. The Kirkwall editor is to be congratulated on the tranquil life which he lives undisturbed by the news of the outer world, if not upon his insight into the character of his advertisements.

THE DILATORY CHURCHWARDENS.

SOME time ago the crypt of the church of St. George-the-Martyr, Southwark, was noticed to be full of fragments of burst coffins, bones, and other substances prejudicial to health. After a good deal of discussion and perseverance on the part of Dr. Waldo, the medical officer of health, a letter was written by the Home Office ordering the crypt to be cleared out. The letter was dated August 11th, 1898, but nothing more was heard of it until Jan. 24th, 1899, when it was discovered in St. George's Parish-room. The chairman of the vestry reported the matter to the vestry upon Feb. 7th. We see that the estimated cost of clearing out the crypt is £2000 and that a member of the vestry protested against this expenditure. He is reported as saying that he did not believe that the clearing out was to be done on sanitary grounds, but that an attempt had been made to get a room added to the church at the expense of the ratepayers. The beliefs of vestrymen and members of boards of guardians would, if collected, form a curious chapter in the history of human intellect.

REPAIR OF THE RUPTURED UTERUS.

IN the *Gazzetta degli Ospedali* of Feb. 5th Dr. Tullio Pozzan of Vicenza relates a successful case of repair of rupture of the uterus. The patient, who lived in the country and was 41 years of age, had had seven natural labours all with head presentations. Two years after the last she again became pregnant, the confinement being expected in the middle of August, 1898. Pains of no great intensity commenced on the evening of Aug. 14th and continued all through the night. The membranes broke at 10 A.M. next day. The midwife stated that the dilatation of the os was nearly complete and that she could touch the fontanelles. The pains then became frequent and strong but the presenting part did not advance and the symptoms of rupture occurred suddenly. Dr. Pozzan saw the patient at 4 A.M. on Aug. 16th, about 15 hours after the accident. The fœtus could be easily felt in the peritoneal cavity covered only by the extremely thin abdominal walls. The os was soft and dilateable; no portion of the fœtus presented. The woman having been removed to the General Hospital of Vicenza Dr. Pozzan at 7 A.M. made an incision in the linea alba six inches long from the umbilicus to near the symphysis, whereby he was able easily to remove the fœtus and placenta. The laceration of the uterus was in the lower segment of the anterior wall, irregularly transverse in direction, extending towards the left and involving the broad ligament; the upper margin was well in sight, but the lower margin was hidden behind the bladder. Clots, meconium, &c., were wiped up with napkins wrung out of boiling water. The lower margin was then brought into view by pushing it up with the finger in the cervix and the muscular layers of the two edges were stitched together with silk. The visceral peritoneum was then united with another line of stitches and the abdominal parietes were closed without drainage. The operation lasted 50 minutes. More than 40 stitches were inserted in the uterus. The fœtus weighed seven and three-quarter

pounds and was 20 inches in length, the diameters of the head were normal. After the operation the patient's highest recorded temperature was 38·6° C. (101·4° F.). She left her bed on Sept. 1st and was discharged recovered on Sept. 10th—namely 25 days after the operation. Two months subsequently Dr. Pozzan found her to be in excellent health. The uterus had subsided to its normal dimensions but was anteflexed as a result of the cicatrisation anteriorly. He says that Merz in 1894 was able to collect histories of 39 laparotomies after rupture of the uterus, of which 18 were successful. To this number must be added a case which occurred in the practice of Dr. Paolo Rossi of Vicenza in June, 1891. The patient was 40 years of age and had had six normal labours. Rupture of the uterus occurred in the seventh and laparotomy without suturing the uterus was performed at her own home. She was able to leave her bed after 29 days and was then perfectly recovered.

THE INTERNATIONAL CONGRESS OF GYNÆCOLOGY AND OBSTETRICS.

THE third session of the International Congress of Gynæcology and Obstetrics will be held at Amsterdam from August 8th to 12th, 1899. The questions arranged for discussions (at which already several prominent medical men of different nationalities have promised to be present) are as follows: 1. The Surgical Treatment of Fibro-myoma. 2. The Relative Value of Antisepsis and Improved Technic for the Actual Results in Gynæcological Surgery. 3. The Influence of Posture on the Form and Dimensions of the Pelvis. 4. The Indication for Cæsarean Section compared with that for Symphysiotomy, Craniotomy, and Premature Induction of Labour. The official languages are English, French, German, and Italian, and the reports with their translations in the official languages will be sent to all the members a month before the opening of the Congress. As regards private communications preference will be given to those bearing upon the above-mentioned leading questions. Time will also be allowed sufficient for any demonstrations. The subscription for membership is one guinea. Subscription forms and further particulars may be obtained from the honorary secretary for Great Britain and Ireland, Dr. Arthur Giles, 37, Queen Anne-street, London, W.

"EUTHANASIA."

THE letter which we print this week from Mr. W. G. Burnie in reply to one from "Euthanasia" calls to mind a question which from time to time must suggest itself to every medical man. Such cases as our correspondent described occur only too frequently and the doubt as to how far we are justified in pushing anodynes and anæsthetics naturally causes us considerable anxiety. In reply to his queries we believe, however, it would have been perfectly justifiable for him to have used morphia hypodermically and patients are frequently kept under chloroform cautiously administered for hours to mitigate the sufferings caused by convulsions—e.g., those of tetanus. Medical men must frequently ask themselves whether it would not be more humane in certain cases to purposely administer an overdose of morphia or of an anæsthetic. We refer, of course, to those patients suffering from a malady which is perfectly incurable, which will undoubtedly cause death within a very short period, and in which as long as the patient survives intense agony will be experienced. No one can deny "that it would be the kindest thing to do," but the physician's duty is to attempt to save life, never to destroy it. It is wonderful how much pain can be relieved without danger to life by the suitable administration of anodynes, and we consider that a practitioner is perfectly justified in pushing such treatment to an extreme degree, if that is the only way of affording freedom from acute suffering. With morphia, in the majority of cases, there is but little risk; in cases of extreme cardiac weakness it may certainly be given; the only doubtful cases are those in which there is advanced renal disease, and then it is for the physician to decide which is likely to be of more harm to the patient, the prolonged agony or the morphia, or whether the administration of some other anodyne should be tried, and if that fails then whether chloroform inhalation should be given. If the risks be explained to the friends we are of opinion that even should death result the medical man has done the best he can for his patient. But this is a very different matter from purposely giving a larger dose than is necessary. The various suggestions which have been made as to consultations for discussing the question of painlessly shortening the existence of a fellow-being are hardly to be taken seriously. If such a mode of treatment were suggested it would be so open to abuse by the unscrupulous persons who are unfortunately to be found in every rank of life that the medical profession would never countenance it.

PETROLEUM LEGISLATION.

WE are evidently a long way from obtaining a definite pronouncement from the Government on the vexed question of altering by statute the flash-point of petroleum oil. Mr. Jesse Collings stated to a deputation last week that the matter was receiving close and serious consideration. The members of the deputation who spoke and who represented the Federation of Grocers' Associations urged that legislation should be directed to the construction of the lamp rather than to the adoption of a much higher minimum flash-point of the oil. One remarkable statement was worthy of note. A gentleman stated that "the vendors who provided oil for the 10,000,000 lamps in use every night and day in Great Britain wish to enlist the sympathy of the department in opposing any legislation which suggested the raising of the flash point, the evidence before the committee being entirely in favour of no alteration." The subject of future legislation in this matter is beset with peculiar and great difficulty and it is a pity that this difficulty is not diminished by the sensational statements as to lamp accidents which appear so frequently in the daily press.

THE COLOUR OF PRIMITIVE MAN.

IN the February issue of *Knowledge* Professor Arthur Thomson writes the first instalment of what promises to be a series of very interesting articles on the Treatment and Utilisation of Anthropological Data. The first article deals with the question of colour—a question which has attracted considerable attention in the fields of physical anthropology. Whilst on the one hand it has been maintained that primitive man was fair in complexion, on the other hand it has been maintained that he was of a dark tint. "It is not necessary for us," says Professor Thomson, "to accept the extreme position. ..... A middle course is open as suggested by Dr. A. R. Wallace who advances the view that primitive man was probably of a Mongoloid stock and that his subsequent modification into white and brown and black varieties was due to his migrations into geographical areas where he was subject to the influence of varied conditions of climates." The writer, however, does not commit himself to the acceptance of such opinion but remarking that the theory is suggestive draws attention to associated details of importance in studying the question. Among them

"Temperature may be mentioned, diurnal as well as nocturnal. The moisture of the atmosphere. The nature of the soil. The diet. The manner of life, whether dwellers in dense forest or jungle—where, for example, the natives are screened from the sun's rays, or dwellers on the hills and

plains where they are most exposed to light and alternations of temperature. ..... Freckles, which, curiously enough, occur most frequently on those with hair of a pronounced red colour, do not differ in any respect from the pigmented skins of the darker races except in regard to their colour and their circumscribed appearance. In persons of dark complexion there is, in addition to the red, brown, and yellow pigments, probably a very slight admixture of the black pigment. This may be present in sufficient quantity to impart a blackness in the hair but not abundant enough to destroy the fairness of the skin, though in exceptional situations its presence may be very evident." It is curious to note that "when the skin of a white man is grafted on to a negro the grafted patch assumes the normal tint of the individual, and, *vice versa*, when black skin is grafted on to white the pigment disappears."

The article, which is illustrated with photo-micrographs, deserves careful perusal.

THE LATE PROFESSOR KANTHACK.

WE publish in another column a letter dealing with the question of a memorial to the late Professor Kanthack. The form of the proposed memorial is, we think, very admirable, for it is intended to provide for the widow of the deceased during her lifetime and after her death to apply the capital sum to some permanent memorial of him who was one of our most brilliant pathologists. All who knew him should subscribe according to their ability. He was known to many personally, to more perhaps by his work, and there should be no difficulty in collecting an adequate sum for the objects set forth in our correspondence columns.

THE ARTHRITIS OF CEREBRO-SPINAL MENINGITIS.

DR. OSLER has contributed an important paper to the *Boston Medical and Surgical Journal* of Dec. 29th, 1898, on this subject. Arthritis is a very inconstant symptom. An old writer, North, in his valuable "Treatise on a Malignant Epidemic commonly called Spotted Fever" (New York, 1811) mentions "swelling like rheumatism of the joints." In the recent outbreak in Boston arthritis occurred in six out 111 cases. Dr. Osler relates two cases. In one the onset was abrupt and accompanied by chill. There were marked fever, stiffness of the neck, splenic enlargement, delirium, and unconsciousness from which the patient could not be roused. The arthritis was the most prominent symptom. The right wrist, the elbows, and knees were red and swollen. The condition of the joints suggested pyæmia, but the deep coma and rigidity of the neck cerebro-spinal fever. There was consolidation of the lower part of the right lung which appeared to be pneumonic, but while meningeal symptoms in ordinary pneumonia are not uncommon they are rarely associated with stiffness of the neck, and arthritis is excessively rare. Lumbar puncture gave a turbid fluid containing lymph and the diplococcus intracellularis. Half an ounce of pus obtained from the right knee showed the diplococcus and the blood also contained it. This is the first case in which during life the organism has been isolated from the blood and joints. The necropsy revealed purulent cerebro-spinal meningitis. In the second case the illness began with pain and redness and swelling of the right ankle, then the left ankle and right hip were affected. The diagnosis was doubtful, but typhoid fever was suspected. Pain in the back on the sixth day and retraction of the neck (without rigidity) on the seventh day aroused suspicion. The joint symptoms subsided completely. On the twelfth day the legs were limp and paraplegic and there was anæsthesia as high as the umbilicus surmounted by a band of hyperæsthesia. There were no reflexes to be obtained from the legs. Lumbar puncture gave exit to two drachms of pus containing suspicious looking diplococci. The lower part of the cord was exposed and thick pus was drained away. A small catheter was passed under the dura mater and the membranes were irrigated with normal saline solution. Much pus escaped. The patient was improved in health at the time of the report. The infectious arthritides while common in some fevers are very rare in others. The general view has been that the arthritis of cerebro-spinal fever is a secondary effect of the meningitis; the separation of the organism from the blood and joints in the first case shows that it may be the direct effect of a widespread diplococcus septicæmia.

THE MILROY LECTURES: AN INTERESTING EXHIBIT.

AT the close of his first lecture Dr. Poore exhibited an interesting series of rabbits which had been buried in wire cages for a year at different depths and under different conditions. The results of these experiments will be dealt with in an appendix. The specimens will be again shown at the close of the lectures on Tuesday and Thursday next to anyone interested in the subject.

PRIVATE MUNIFICENCE AND MEDICAL RESEARCH.

IT will be remembered that some little time ago Mr. Balfour made an eloquent appeal for the richer endowment of medical research. In commenting on the speech of Mr. Balfour[1] we remarked that we hoped it was a foreshadowing of a Government grant in aid of such research. Our hope has so far not been realised and so private generosity has come forward. We learn that Sir Frederick Wills has forwarded to the treasurer of Guy's Hospital a cheque for £5000 to be used for the benefit of the medical school. It is perhaps only fitting that an institution founded by private charity should continue to benefit by the munificence of a private benefactor, but we think it quite time for the State, which has in the past (and very probably will in the near future repeat its action) laid rude hands upon the moneys of pious founders, to do something for the carrying on of that research upon the results of which the health and happiness not only of the living but of those yet unborn may depend. However this may be medicine and science can and do unite in offering very hearty thanks to Sir Frederick Wills.

"TIGER NUTS."

A NOT infrequent and very troublesome form of rectal obstruction in children arises from the practice of eating what are known as "tiger nuts." These nuts are of a somewhat flattened conical shape, from a quarter to half an inch long and inclosed in a dry, brown, inseparable skin marked with transverse ridges. Being small they are apt to be taken in considerable quantity and being hard they are commonly swallowed in a crushed but unmasticated state. The natural result as it is revealed to the practitioner who is called in a few days after this injurious repast is a peculiarly painful impaction of the rectum. The finger passed within the anus finds itself in what feels like a mass of small coal. Defecation is a misery. Enemata are at the outset of treatment nearly useless. The finger and the spoon are equally painful and inadequate, and the only effectual method of evacuation with which we are acquainted is to administer chloroform and carefully unload the rectum with an ordinary ovum forceps. This process ought to be followed up by bland disinfectant enemata used alternately with others of olive or linseed oil. Sometimes the removal of the nut-fragments is followed by a species of mucous diarrhœa which is unpleasantly suggestive of the mischief which they are capable of causing in the upper bowel. There is, indeed, no

[1] THE LANCET, July 16th, 1898, p. 163.

reason why a multitude of irritant foreign bodies should always pass in safety to the alimentary terminus. Another question related to this subject is that of responsibility for the cause of the illness. The case is emphatically one for prevention and this duty cannot safely be evaded by parents, teachers, and any others who are entrusted with the care of children. We are also of opinion that a caution should be issued by the sanitary authorities to keepers of sweet-shops and to corn-merchants condemning the sale of these mischievous nuts as human food.

THE MECHANISM OF ELECTRO-THERAPEUTICS.

OUR Rome correspondent writes: "On May 4th Como will celebrate the hundredth anniversary of the day on which her great citizen Volta invented the pile which goes by his name. The occasion will be utilised for the holding of an International Exhibition of Electricity, the success of which the Government is coöperating with the city and province to ensure. Several of the Ministers (those of Public Instruction, Public Works, Commerce, and Agriculture as well as of the Home Department) have announced their intention not only of being present but of awarding medals to those of the exhibitors who have been most successful in contributing to the practical uses of electricity. A section will be devoted to its various medical applications—a field in which Italy has a highly honourable record. The catalogue alone, with its descriptive letterpress, will in this department have much to interest the medical profession, while the electro-therapeutic appliances in which the latest developments are to be represented will furnish a series of object-lessons from which the intelligent visitor cannot fail to profit. The season, moreover, the 'tempo Maggese,' is that at which the lake and its surrounding scenery are at their best, and those of your readers who contemplate a holiday at that time or who may be lingering in the Italian lake-country on their return from the winter cities farther south might do worse than give a few days to Como and its celebration of the 'Centenario di Volta.'"

THE LIVERPOOL LOCK HOSPITAL.

THERE is probably no disease which is so widely spread or so far-reaching in its effects as syphilis and those who are most acquainted with its ravages are those who feel most earnestly the importance of treating it energetically, for every case which occurs is a menace to the health of the community in which it exists. Cases of syphilis and of the other venereal diseases are treated in the out-patient department of most of the general hospitals, but at the present time in the London general hospitals there are only 57 beds available for female patients suffering from venereal disease—a number utterly inadequate for the satisfactory treatment of these serious diseases. There are only six lock hospitals in the British Isles and an attempt is being made to close one of the most useful of these hospitals. Mr. F. W. Lowndes has shown in the January number of the *Liverpool Medico-Chirurgical Journal* how valuable lock hospitals and lock wards are in the treatment of venereal affections and how the patients are in numerous cases benefited morally as well as physically. He describes all the lock hospitals in Great Britain and Ireland, and especially the Liverpool Lock Hospital, with which he has been associated for 23 years. All lock hospitals have great difficulty in obtaining pecuniary support and this fact must tend to curtail their operations. The Liverpool Lock Hospital is under the committee of the Royal Infirmary, but the great additional expense is not counterbalanced by an additional increase of income and therefore it has been proposed to close the hospital. This would be a most regrettable step, for the benefit of in-patient treatment in the severer cases of venereal disease cannot be gainsaid, and although it is true that the majority of those treated are suffering from the consequences of their own vicious conduct, yet the patients include many married women and children who are afflicted from these diseases through no fault of their own; and, moreover, the fact that the patient suffers from any disease because of his or her own misconduct can never justify a refusal of treatment, for there is no law of proportion between the degree of immorality and the severity of the disease. We earnestly hope that the committee of the Liverpool Royal Infirmary will see their way to continue and even to extend the benefits afforded by the Liverpool Lock Hospital.

SANITATION AND THE DEATH-RATE.

WE quote the following extract from the report of the Chicago Department of Health for 1898. From a scientific point of view such comparisons are useful, but they also serve the important object of educating the public in the results of medical science as applied to public health.

"During the Victorian jubilee, 1897, one of the addresses presented was on the subject of sanitary improvements during the preceding 60 years and their effect on the saving of life. The speaker—the Lord Mayor of London—cited Macaulay's comparison between the London mortality of 1844 and that of 1684 which showed that the death-rate of the latter year, "not a sickly one," was between 43 and 44 per 1000, or one in every 23. He then went on to show that in 1897 the London death-rate was 14·9 per 1000, despite the enormous increase in the population. During the 10 years from 1838 to 1847 the mean annual death-rate for England and Wales was 22·16 per 1000, while that of the 10 years from 1881 to 1890 was 19·1 per 1000. 'This implies that 77,000 out of an estimated population of 29,000,000 were kept alive in each year of the latter period who would have died in each year of the former,' and this saving of life is attributed to sanitary improvements during the period. Here in Chicago there may be shown a still more remarkable saving of life. Thus during the decade 1845–54 the annual death-rate was 43·3 per 1000; during the decade just closed (1889–98) the annual death-rate has been 16·3 per 1000, and during the last five years of this decade the death-rate has been 14·4 per 1000, or a fraction less than the London death-rate of 1897. This implies that upwards of 46,500 out of an average annual population of 1,611,235 were kept alive in each year of the last five years who would have died in each year of the period between 1845 and 1854. These figures are further sustained by a study of the ages at death of 10,208 who died in 1872 (the records prior to 1872 were destroyed in the Great Fire), of 12,141 who died in 1882, of 27,259 who died in 1892, and of 11,655 who died during the first six months of 1898. The average age at death in 1872 was 15 years and two months; in 1882 it was 19 years and six months; in 1892 it was 23 years and four months; and for the first six months of 1898 it was 29 years and seven months. This implies an increasing duration of life in Chicago of nearly 50 per cent. during the last quarter of a century."

MEDICAL GLEANINGS FROM ROMAN EGYPT.

IT is probable that no archæological literary discovery of the expiring century will in future be so celebrated as the rescue from the sands of the Egyptian Fayoum of more than 10,000 complete and fragmentary papyri by the explorers acting under the auspices of the "Græco-Roman Branch of the Egyptian Exploration Fund," a society which at its commencement owed much to the late Sir Erasmus Wilson. A selection from some 1400 documents, the greater part of which are at Oxford and the minority at the Ghizeh Museum, has been made by Messrs. Grenfell and Hunt who have carefully edited about 150 of them and published them with a commentary in a volume entitled "The Oxyrhynchus Papyri: Part I., with Eight Facsimile Plates." First in importance is the now famous portion of a "Logia" or collection of "Sayings of Our Lord." There are also pieces by Sappho, Thucydides, Plato, and other

classical writers. The first papyrus of medical interest is No. 39, which is from the military archives of Oxyrhynchus, and is the certificate for the release from army service of one Tryphon because of defective eyesight. It reads thus: "Copy of release, dated and signed in the twelfth year of Tiberius Claudius Cæsar. Release from service was granted by G. Vergilius Capito, præfect of Upper and Lower Egypt, to Tryphon son of Dionysius, weaver, suffering from cataract and shortness of sight, of the metropolis of Oxyrhynchus. Examination was made at Alexandria." Another papyrus gives an account of a lawsuit relative to the identity and the custody of an infant who had been placed with a baby farmer. Papyrus No. 51 is the report of a medical officer upon a case of suicide and is dated A.D. 173. A similar document is to be found in the large collection of Greek papyri in the Berlin Museum. The present one is as follows: "To Claudianus, strategus, from Dionysius, son of Apollodorus, son of Dionysius of Oxyrhynchus, public physician. I was to-day instructed by you through Heraclides, your assistant, to inspect the body of a man who had been found hanged, named Hierax, and to report to you my opinion upon it. I therefore inspected the body in the presence of Heraclides at the house of Epagathus in the Broad-street quarter and found it hanged by a noose, which fact I accordingly report."

THE trustees of the Reid Trust for the Education of Women have decided to offer a scholarship at the London School of Medicine for Women in memory of their co-trustee, Miss Bostock of Penmaen, Glamorganshire, lately deceased. The value of the scholarship will be £60 a year, tenable for from two to four years, and will be awarded on the result of the preliminary scientific examination of the University of London. The Bostock scholar must read for the London medical degree. Further particulars may be obtained from the honorary secretary of the Reid Trust, Bedford College, York-place, W.

THE Royal Agricultural Society of England, with the object directly of assisting dairy farmers in meeting the present requirements of sanitary authorities and indirectly of preventing the spread of tuberculosis through dairy products, has issued a small leaflet full of wise suggestions to all whom it may concern. Copies of this leaflet may be obtained free of charge on application to the secretary of the society at 13, Hanover-square, London, W.

WE regret to announce the death of Dr. Arkle from pneumonia after only three days' illness. Deceased had just resigned the vice-deanship at Charing Cross Hospital Medical School where also he was Lecturer on Biology and Joint Lecturer on Practical Medicine.

THE explanatory memorandum of the Army Estimates has been issued. There is an increase of £10,000 for the medical establishment, coinciding with provision for 18 additional officers and 150 men for the Royal Army Medical Corps.

SIR JOHN STIRLING MAXWELL, BART., M.P., has consented to preside at a festival dinner in aid of the funds of University College Hospital to be held at the Whitehall Rooms, Hôtel Métropole, on Thursday, June 15th.

DR. J. M. ROSS, until now medical officer of the county of Dumfries, has been appointed county medical officer of health for Wiltshire.

THE ROYAL COMMISSION ON THE METROPOLITAN WATER-SUPPLY.

THE fifty-second sitting of the Royal Commissioners was held at the Guildhall, Westminster, on Feb. 14th. The Chairman (Lord Llandaff) and all the other Commissioners were present. The witnesses examined were Mr. Frank Henry Wybroo, Mr. Mathew Wilson Hervey, respectively secretary and chief engineer to the West Middlesex Waterworks Company, and Mr. Frederick Tendron, chairman of the Grand Junction Waterworks Company.

A number of statements were put in referring to the works of the West Middlesex Company. These included a description of the engines and of the pumps, a table showing the freehold and leasehold land used by the company, and statistics extending in some cases as far back as 1851 referring to the amount of water supplied, to the population, and to the number of houses supplied. Constant supply was first given to 326 houses in the year 1873. This number amounted to 0·7 of the entire percentage of houses supplied. At the end of last year the number of houses under constant supply numbered 74,692—89·5 of the total number of supplies given. The daily amount of water supplied per head has increased somewhat irregularly. In the year 1852 it amounted to 27·5 gallons per head daily; in 1862 to 30·7; in 1872 it was rather less—28·9; in 1882, 25·4; in 1892, 31·1. In the year 1898 it was 34·9. The tables put in give full details with regard to the pumping capacity and to the length of the mains. An estimate was given of the future capital expenditure of the company—that is, the amount which it was supposed will have to be spent in order to carry on the undertakings up to the year 1937. Tables were also given showing the gross and net profits and other financial details.

Mr. WYBROO in answer to the CHAIRMAN explained that the net profits fell in the year 1895 because of the expenditure which it was necessary to make as a result of the effects of the frost. There was a diminution in the net profits in the year 1894 which was due to a "rebate" to the water consumers. Discussion arose as to the meaning of the word "rebate" and as to the propriety of its use.

In answer to Mr. MELLOR the witness said that every consumer in the company's district had his water rents reduced. This was a statutory reduction because the company were able to pay their shareholders 10 per cent.

Mr. BALFOUR BROWNE preferred the expression "reduction of charges."

Mr. PEMBER thought "rebate" a good word.

In answer to Mr. MELLOR the witness said that a rebate of five per cent. was allowed upon all water rents from Midsummer, 1887. It was not allowed before that time because back dividends had not been paid.

In answer to the CHAIRMAN the witness said that it was not true that the poorer classes paid more than the richer in the districts supplied by the West Middlesex Company. On the contrary, the poor paid less than the rich.

The CHAIRMAN said that Mr. Gomme of the London County Council had pointed out that the expenditure of the company went up considerably after the year 1887—that is to say, as soon as the company had paid its back dividends and could therefore divide amongst themselves only 10 per cent. by way of dividend. The witness said that the annual amounts put down for maintenance in the tables which had been put in were correct. The expenditure for the years 1886 and 1887 was due to the fact that a greater amount was spent on filter beds. Money was spent at that time because it was necessary; the work was not done before because it was not required. In the years 1887 and 1888 new filter beds were constructed at a cost of £21,000. The payment of that sum was spread over two years.

In answer to Mr. DE BOCK PORTER the witness said that between the years 1878 and 1887 there was no exceptional expenditure.

In answer to the CHAIRMAN the witness said that there were no new works during those years and the extra works which were done were paid for out of revenue.

The CHAIRMAN examined the witness with regard to the revision of the capital of the company which took place in the year 1852. The company claimed that at that time their capital amounted to £830,000.

The CHAIRMAN asked how it was that Parliament lopped off the difference between £506,697 and £830,000. The witness explained that although some of the capital of the company was raised at par and the shares were fully paid up some other capital was raised at no less than 70 per cent. discount. At one time the authorised capital was £400,000, but to get £400,000 the company issued 8300 pound shares for which they only got £396,000. Parliament allowed them to fix as their capital the actual amount of money which had been received for the shares.

Mr. PEMBER read extracts from the Act of 1852 which he remarked "put it as clean as a whistle." He also inserted interpolations of his own and the CHAIRMAN remarked that when counsel interposed observations of his own in reading the text for the first time it was extremely difficult to follow. Briefly the fact is that the amount allowed by Parliament was the sum which had been actually subscribed by the shareholders plus the amount which they had spent in the works and part of which was paid out of their dividends. (During the early struggles of this and other companies the adventurers instead of paying a dividend often used their profits for the maintenance or extension of their works. See history of the Lambeth Company, THE LANCET, March 13th, 1897, p. 757.)

In answer to the CHAIRMAN the witness said that the Vestry of Paddington had applied to a magistrate in the year 1888 to fix the charge for water supplied for municipal purposes. At that time the price charged by the company was 9*d*. per 1000 gallons but the magistrate altered the rate to 8½*d*.

In answer to Sir JOHN DORINGTON the witness said that he could not tell on what grounds a magistrate in such a case gave his decision.

Mr. CLAUDE BAGGALLAY said that he had had to argue a case just before Christmas and that he was unable to say what the guiding principle in the decision was.

Mr. PEMBER suggested that the magistrate acted as an arbitrator and not as a lawyer, but Mr. BAGGALLAY said that the magistrate gave reasons for his decision, but that it was very difficult to apprehend them and he could not attempt to explain them. Mr. LEWIS asked whether the decision of one magistrate was respected by another magistrate. Mr. BAGGALLAY said that he was unable to answer that question.

With regard to the effect of the decision of the House of Lords in the case of Dobbs *versus* the Grand Junction Company the witness said that the company revised their charges after this decision. In some cases the charges were lowered, in some cases they were raised. In a great many cases the company was charging on a sum less than the rateable value of the property. The result of the revision of the water rents of the company was favourable to the company.

The CHAIRMAN suggested that they were obliged to reduce some of their rates but screwed up all the others, but the witness pointed out that they had not raised them as much as they had a right to do for it happened that when Torrens's Act was passed and rateable value was made the standard on which water rents were charged there was another revision which resulted in a further increase to their revenue. The decision of the action in the case of Dobbs and the Act of Torrens were both favourable to the revenues of the West Middlesex Company.

With regard to the question of meters the witness said that the cost of supplying meters to the whole of London would amount to about £1,500,000 and the cost of fixing them would amount to £1,000,000 more if they were placed outside the houses. If they were placed inside the houses the cost would be less but special legislation would be necessary. It would also be necessary that a scale of charges should be fixed to produce incomes equal to the present ones received by the companies and in addition a meter rent would have to be charged.

The CHAIRMAN thought that there was nothing absolutely sacred about the present net income of the companies, but Mr. PEMBER expressed the hope that the 10 per cent. was in the canon.

Mr. BALFOUR BROWNE referred in some detail to clauses relating to the fixation of the capital of the company in the year 1852 and pointed out that the words of the Act were that capital should be taken as £506,300 divided into 8300 shares of £61 each and that the nominal value of the existing shares of the company was to be reduced from £100 to £61 each.

Mr. HERVEY, in answer to the CHAIRMAN, explained the tables which had been put in with regard to the statistics of the expected increase in the population supplied by the West Middlesex Company. He said that according to Lord Balfour's estimate the company would in the year 1937 require 10,000,000 gallons a day more than at present. This water they hoped to get from the Thames and the cost of doing so and of making the alterations requisite for its distribution would, he thought, amount to £1,250,000. They would require a new covered reservoir which would cost about £50,000, new filter beds costing £150,000, new mains costing £300,000, and engines, boilers, and buildings amounting to £200,000.

The CHAIRMAN referred to a proposal which had been made to divide the undertakings between the county of London and the county of Middlesex so that each of these districts might have an independent supply. The witness replied that that would be a very difficult thing to do and would entail a large expense the amount of which it would not be easy to estimate. Several of the reservoirs belonging to the company which are situated within the county of London supply districts outside the county of London; and, again, reservoirs situated outside the county of London supply districts inside that county. All the mains are laid down so as to give a supply most conveniently under the existing conditions; if those conditions were altered it would necessitate a double series of mains in a very large number of places. The arrangements for the purification of the water are situated in the county of Surrey; all the water passes to Hammersmith whence it is pumped to the districts supplied. Roughly speaking, about a quarter of the water is supplied in the county of Middlesex and the other three-quarters in the county of London. If a complete severance of the arrangements for the purification and distribution of the water were made the subsidence reservoirs would have to be divided. At present the water passes to the pumping stations at Hammersmith in a common tunnel and a fresh tunnel would have to be made. The pumping station at Hampton is in the county of Surrey; if a complete severance of the supplies were made there would be a difficulty as to the mains from Hampton to Barnes. Filter-beds would also have to be separated and divided between the county of Middlesex and the county of London. The whole of the distributing mains would have to be remodelled so as to pump direct to the county of Middlesex without interfering with the mains supplying the county of London.

In answer to Major-General SCOTT the witness said that it would be extremely difficult to divide the filter-beds and the engines between two authorities assuming that the severance took place on the lines suggested by Sir Alexander Binnie. At the present time the filtered water is collected into one shaft from which it is passed through a tunnel under the Thames to Hammersmith.

The CHAIRMAN questioned the witness as to the experience he had had with regard to the deposit of mud in the reservoirs. The witness said that 18 months ago they had cleaned out a reservoir for the first time for a period of 30 years. This reservoir which was situated at Barnes received water pumped directly from the river. The accumulation of 30 years amounted to an average of 8·42 of liquid mud; of this a large proportion, certainly 50 per cent., was water.

In answer to the CHAIRMAN the witness said that in flood time the water was much more foul and contained more solid matter in suspension than when the river was not in flood.

In answer to Mr. MELLOR the witness said that in the year 1866 they cleaned out four acres of filter beds which had been constructed in the year 1852. The interior of the beds contained a certain amount of coloured matter but it was found that practically the whole of the matter in suspension in the water had been arrested at or near the surface of the bed. During the process of filtration a film is formed on the surface of the filter. This film is visible to the naked eye and does not require a microscope or any other scientific apparatus to detect it. During the summer time when the water is good the film on a filter bed which has been at work for a couple of months does not amount to more than the eighth of an inch in thickness. In the winter when the water contains more suspended matter the film is formed more quickly but it has the same appearance.

In answer to Major-General SCOTT the witness said that before the reservoirs were made at Barn Elms the company had to deal with water which was more or less muddy. This was passed through subsidence reservoirs before filtration.

When the water was more or less muddy it was found that after filtration the colour was not so good as the filtrate of water which was not originally muddy. Flood water was always coloured and the colour could not be eliminated.

Major-General SCOTT suggested that the quality was not as good when they had to deal with flood water as when they had to deal with water in its best condition. The witness admitted that he did not see how it could be so good because the river water at its best was practically chalk water. Under the Staines Reservoirs Scheme water derived from that source would be treated by subsidence before it was filtered. The arrangements of the company were such that it could not possibly be used otherwise. The witness thought that it was desirable that flood water should always pass through subsiding reservoirs. If the water were not allowed to subside a larger number of filters would be necessary.

In answer to Mr. MELLOR the witness said that the first sign of the choking of a filter was that the water passed through the sand less rapidly; therefore if the water were allowed still to flow on to the filter bed at the same rate the level of the water on the bed would rise. A filter-bed may remain in an efficient condition without becoming choked for a week, a month, or two months, according to the quality of the water filtered. It was the duty of a man to watch the filter night and day.

In answer to the CHAIRMAN the witness said that in the case of flood water the water after filtration was always more coloured in the winter than in the summer time. The difference could be detected in an ordinary bath.

Sir GEORGE BRUCE said: "If you notice it in a bath you would not notice it in a tumbler."

In answer to Mr. MELLOR the witness said that the coloured water did not necessarily imply that the water was of a bad quality and he gave the Glasgow water as an instance.

Mr. PEMBER suggested that it was very like the difference between diamonds of different water. It made a great difference to the value per carat, but nobody but an expert would know it and Mr. BALFOUR BROWNE agreed that the value was very much affected.

In answer to Major-General SCOTT the witness said that he did not attach much importance to the possession of a recording apparatus to show the rate of filtration. He was aware that such arrangements were in general use in Berlin, but the manner in which water was to flow on to the filter bed must be controlled by the individual in charge and the only use of the arrangement was that it gave a record of what was actually being done.

In answer to Mr. MELLOR the witness said that there was not the least objection to the apparatus.

Mr. FREDERICK TENDRON said that he had been chairman of the Grand Junction Waterworks Company for two years. He did not think that the people of London would gain by buying the water companies' undertakings at any rate for the present. With regard to the company in which he was concerned he would say, Leave the undertakings in the hands of the company and they will obtain their 10 per cent. maximum and possibly also their back dividends sooner than any public body purchasing the undertakings could arrive at the same financial point, therefore the consumer would benefit more rapidly if things were left as they are than if the company were transferred to a purchaser.

The fifty-third sitting of the Royal Commissioners was held at the Guildhall, Westminster, on Feb. 20th. The Chairman (Lord Llandaff) and all the other Commissioners were present. The sitting was occupied in hearing the evidence of Mr. Frederick Tendron and Mr. Harry Wilkins (secretary to the Lambeth Waterworks Company). A large number of documents were put in during the sitting. The appendix to the shorthand notes which contains these consists of no less than 60 pages. Amongst these papers there is a statement with regard to the present condition of the Grand Junction Waterworks Company and a number of tables giving particulars with regard to the Stock Exchange value of the stocks of the company at different periods and as to various financial and other details. There is a statement containing particulars with regard to the estimated future capital expenditure which will be necessary and statements with regard to the statutory limits of the supply of the company. These tables cannot be reproduced in THE LANCET.

Mr. TENDRON at the beginning of the sitting made a correction with regard to some evidence which he had given concerning back dividends and the examination which immediately followed had reference to the increase of population which would probably take place within the Grand Junction Company's area of supply. The witness said that, taking 22·3 per cent. as the decennial increase of the population within the company's area, in the year 1937 the population would amount to 920,800 and he proceeded to give an estimate of the amount which, in his opinion, it would be necessary for the company to expend in order to supply this population with an average quantity of 35 gallons per head per day and in providing that a quantity of 42·7 gallons per head daily should be supplied occasionally. The witness estimated that the amount which the company would have to spend would only be £1,063,420, but this was on the assumption that they would be allowed to obtain water from the Thames and that the flow of the river should, if necessary, be reduced to 100,000,000 gallons per day.

Mr. HARRY WILKINS stated that the company which he served did not wish to sell their business and that he was present at the interview which took place between Sir Arthur Arnold on behalf of the London County Council and various representatives of the metropolitan water companies. It may be remembered that Sir Arthur Arnold at the nineteenth and twentieth sittings of the Commission gave his impressions as to the result of this interview which were to the effect that the representatives of the water companies would be willing to sell their businesses. The witness said that on behalf of the Lambeth Company he did not at that interview either agree that the company would be willing to sell their undertaking nor did he give his assent to any particular terms on which purchase might be effected. At the present time the company do not assent to the arbitration clauses suggested by the London County Council. Mr. Banbury's scheme[1] would, in his opinion, require considerable modification before it could be accepted by the water companies.

In answer to Mr. DE BOCK PORTER the witness said that he could not say how long it would be before the company would be likely to reduce their water rents. The witness thought that the companies ought not to be prevented from pumping dry the wells which belonged to other people, and practically he gave it as his opinion that the companies ought not to be placed under any rigid control with regard to their arrangements as to their future supplies. He gave it as his opinion that the provisions of the sinking fund clause were atrocious.

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[1] Mr. Banbury's scheme for the purchase of the Metropolitan Water Company's undertakings was given on the thirtieth sitting of the Royal Commission, which was held on July 18th, 1898. (See THE LANCET, July 23rd, 1898).

THE PLYMOUTH POLICE SURGEON.—At a recent meeting of the Plymouth Town Council the Watch Committee reported that as the result of correspondence passed between Mr. Wolferstan, police surgeon, and the town clerk with regard to the duties and office of the police surgeon they had resolved that Mr. Wolferstan be requested to resign the office at the termination of the current financial year. After a considerable discussion the council negatived the minute of the Watch Committee by 30 votes to 11. Mr. Wolferstan who has been police surgeon in Plymouth for 25 years is to be congratulated upon this result.

VACCINATION IN BARTON REGIS (EXETER).—At the meeting of the Barton Regis Board of Guardians held on Feb. 17th the clerk stated that the particulars of the return respecting the vaccination of children from Jan. 1st to June 30th, 1898, in the vaccination districts of Clifton, St. Philip and Jacob, Ashley, Westbury, Stapleton, Winterbourne, and St. George were as follows: number of births returned 1570, successfully vaccinated 619, insusceptible 3, dead not vaccinated 137, and "conscientious objections" 58. The number of these births which on Jan. 31st, 1898, remained unentered in the vaccination register was as follows: postponed by medical certificate 84, removed to districts of which the vaccination officer has been apprised 107, and removed to places unknown 30. The number of these cases remaining on Jan. 31st, 1899, neither duly entered in vaccination register nor temporarily accounted for in the report book was 532

Obituary.

WILLIAM RUTHERFORD, M.D. EDIN., F.R.S.,

PROFESSOR OF PHYSIOLOGY IN THE UNIVERSITY OF EDINBURGH.

THE medical profession, not only in Scotland or the United Kingdom, but in every country where a school of medicine exists, will share with us our deep regret at the death of Professor William Rutherford, Professor of Physiology in the University of Edinburgh, which occurred on Tuesday last, Feb. 21st, at his residence, 14, Douglas-crescent, Edinburgh.

Professor Rutherford was born at Ancrum in Roxburghshire just 60 years ago and was educated first at one of those local grammar schools of which Scotland is so justly proud and afterwards at the University of Edinburgh which he was later to adorn with his great gifts of teaching and investigation. He graduated in medicine in 1863, obtaining the gold medal for his thesis, and after filling the usual resident appointments became assistant demonstrator of anatomy at Surgeons' Hall, Edinburgh, his chief being Professor (now Sir John) Struthers. He then went on a tour of the great continental medical schools, which were at that time—that is to say, in 1864—far better equipped scientifically than the British schools. He visited and studied at Berlin, Vienna, and Paris, and when he returned to Edinburgh a year later was already marked out as a rising physiologist. In 1865 the late Dr. Hughes Bennett, who had himself studied deeply in the French and German schools of medicine and who was at that time Professor of the Institutes of Medicine in the University of Edinburgh, appointed Rutherford as his assistant. Here he showed himself so thoroughly competent and advanced a physiologist that it came—at any rate, to his Scotch contemporaries—as but little surprise that in 1869, when only 30 years of age, he should be appointed Professor of Physiology in King's College, London. In 1871 he became Fullerian Professor of Physiology in the Royal Institution of London, and in 1874 returned to his old University of Edinburgh as Professor of Physiology.

The following estimate of Professor Rutherford's work in the chair with which his name will be for ever associated is from the pen of Professor Sims Woodhead, not his least distinguished pupil:—

"Those Edinburgh men who first knew Professor Rutherford in 1874 will scarcely be able to realise Edinburgh University without its late Professor of "The Institutes of Medicine." Those of us who attended his first series of lectures will remember the impression which was made, not so much in the introductory lecture perhaps as when he came to deal with the real work of the session. We should as soon have thought of going without our morning bath or our breakfast as of missing a single minute of Rutherford's lecture or of the catechism which so frequently preceded it. At first we were struck by the thoroughness and patience with which he drilled into us the most elementary facts, but any feeling thus generated was rapidly lost in our admiration of the never-failing success of his experiments, which we soon came to see was the result not only of a wide and accurate knowledge of his subject but of an enormous expenditure of time, ingenuity, and labour. There can be no doubt that the influence exerted by Rutherford in moulding the minds and careers of the men who came within its sphere was due not so much actually to what he taught (though that was always most carefully brought up to date), but to the fact that we were led to look upon his lectures and demonstrations as the manifest outcome of an enormous amount of labour and careful preparation. Whatever Professor Rutherford's position may be in future as an original experimentalist his influence in that direction can never for a moment compare with the influence which he has had indirectly as a teacher, and had he not made a single contribution of his own to physiological science his name in future must rank amongst those of the great teachers of whom Edinburgh is so justly proud. With all this, however, Rutherford was always an ardent investigator, and such time as was not devoted to the preparation of his lectures and demonstrations or to music was given to investigation. I well remember the awe with which I was inspired when I was allowed to go and help in a very small way by counting the drops of bile or by watching the respiration of animals with which Rutherford, assisted by the late Dr. Vignal, was carrying on his experiments on cholagogues and the secretion of bile. Early and late during our summer sessions were these men at work, and we students recognised in Rutherford a man of great physical energy, of strong intellectual power, and of untiring interest in the study and teaching of physiology. This general impression it was that explains the enthusiasm with which his assistants—of whom I remember Stirling, De Burgh Birch, Berry Haycraft, Anderson Stuart, Mc Cormack, Ashdown, Alexander, and Carlier—entered into the work of the department.

"Professor Rutherford with all his little peculiarities and mannerisms—in fact, perhaps partly because of them—was a great favourite with the students. He was a good musician and an old secretary of the University Musical Society; and the present writer—a secretary of later date—who had the pleasure of serving with him on the committee of that society, recalls that it was during the time of Rutherford's membership that this society was at its best. Many old Edinburgh Musical Society men will have the pleasantest recollections of his appearances in the music classroom where, in the intervals of choral singing conducted by Sir Herbert Oakley or the late Mr. G. O. Sinclair, or between the organ solos of Professor Oakley, he would join some of the groups of students and discuss with them the knotty points connected with the work of the society, or encourage a nervous musical lad. Who will ever forget the roar of applause which always greeted his appearance at one of the old K. C's., as slowly mounting the platform he would advance to the piano, and with chest thrown forward, head well back, eyelids half closed, after a few preliminary chords would announce that he would sing "a little thing of his own"? Then with wonderful voice and a dashing accompaniment he would give "The Warrior's Pledge," a stirring song of which both words and music were his own.

"Of his many kind and generous actions to students in difficulties probably no man will ever know, but many a man has gone to him when he has been in difficulty, and often, where more than advice was required, has come away not empty-handed; while several men who could now ill be spared from our ranks owe it to Professor Rutherford's kindliness and generosity that they have been able to complete their medical studies. Two instances at least have come to the personal knowledge of the present writer. During the period of his nervous breakdown the students who had known Professor Rutherford before this illness came on could not understand the change which appeared to have taken place in him, but throughout it all they remained loyal to their old teacher and no one rejoiced more heartily than they on his restoration to health. Whoever may be appointed to succeed him must necessarily be a good man, for there are many able physiologists from amongst whom his successor will be selected, but whoever he may be, and whatever his qualifications, he can never exactly fill the place of Rutherford, at any rate in the estimation of his old pupils. He was a great landmark in the history of the University—a great teacher, a man who appeared to keep in sympathy with his pupils from his very earnestness in work and who, had he been less shy and had his mannerisms been fewer, might not have attracted the student as, considering the nature of his work, it was his good fortune to do. I have gone to him on all kinds of errands—to ask him to sing, to ask him to give prizes, to ask him to subscribe to the athletic club funds, to the Musical Society, to the Union, to come out to the University games, or to specially patronise some athletic function—and never once have I come away empty-handed or without feeling that his contribution was given or his presence promised because he took a real interest, not only in the work, but in the healthy amusements of the students. Some men exert one kind of influence for good, others another, but it will be easily seen that whatever weakness or foibles Rutherford may have had his interest in and desire for the welfare of his students were both genuine and deep."

To Dr. Sims Woodhead's words there remains little for us to add. From the time that Rutherford went back to Edinburgh as Professor of Physiology his life was his work, and the earnestness with which he threw himself into it was the common knowlenge of all, as it was the subject of common admiration. He was elected a Fellow of the Royal Society in 1876, having then been for 16

PROFESSOR WILLIAM RUTHERFORD, M.D. EDIN., F.R.S.

years a Fellow of the Royal Society of Edinburgh. His published works comprise a treatise entitled "The Outlines of Practical Histology," which was published in 1877; "The Action of Drugs on the Secretion of Bile," a book recording the results of his own elaborate investigations which was published in 1879; certain introductory addresses to his classes summarising the scope of modern physiology; and contributions to the Transactions of the Royal Society and of the Royal Society of Edinburgh, to the *Journal of Anatomy and Physiology*, and to our columns, where his excellent "Lectures on Experimental Physiology" first appeared with full illustrations.

Professor Rutherford fell a victim to influenza. Some fortnight ago he was suffering from this insidious epidemic, but he had rallied and the sad issue was not in the least expected. On Monday evening, however, he experienced a relapse which terminated fatally.

CHARLES BADER, M.R.C.S. ENG., L.S.A.,
CONSULTING OPHTHALMIC SURGEON TO GUY'S HOSPITAL.

THE death of Mr. Charles Bader was announced in our columns last week. The regretted event took place on Monday, Feb. 13th, at his country house at Stoke Ferry, Norfolk, where he had lately passed most of his time.

Charles Bader was educated in his native land, Germany, and came to London in 1861 to be assistant ophthalmic surgeon to Mr. A. Poland who with Mr. J. F. France then had charge of the eye wards of Guy's Hospital. He was elected full ophthalmic surgeon to the hospital in 1873 but filled the post for nine years only, having left the hospital 17 years before his death which occurred at the age of 72. During his 20 years of service to Guy's Hospital he did excellent work for the special branch to which he was attached, raising it from a very small department to a position as high as that enjoyed by any special department of any metropolitan hospital. He was a man of great energy, a brilliant operator, and also most original in his methods, so that it is not surprising that for many years he had a very large private practice.

Mr. Bader was a man of many interests outside his profession, a fact which accounts to some extent for the pleasure which so many of his patients took in his society. He was a good athlete, and could box and fence better than most men. Since his retirement from the active staff of Guy's Hospital, particularly of late years, he was much interested in the raising of stock, and bred large quantities of sheep and horses on his Norfolk property at Stoke Ferry where he died.

WILLIAM THOMSON CRABBE, F.R.C.S. EDIN.

BY the death of Mr. William Thomson Crabbe, which occurred on Feb. 13th, Birmingham has lost one of her best-known medical men. Mr. Crabbe was educated at Edinburgh, taking the L.R.C.P. and L.M. in 1865 and the F.R.C.S. in 1872. He practised for some time near Edinburgh, but finally made up his mind to devote himself entirely to medical mission work. He commenced this first of all at Aberdeen, but in 1876 accepted an offer to go to Birmingham as the head of the newly-founded Medical Mission in that city. There his work was so successful that soon it became necessary to provide further accommodation. In the spring of 1896 Mr. Crabbe's health began to fail and he took a six months' holiday, visiting Egypt and the Holy Land—a proceeding which greatly benefited his condition. He continued his work until December, 1898, when he was taken suddenly ill. He underwent an operation with the result of obtaining relief, but he gradually got weaker and died on Feb. 13th. He leaves a widow and three sons, two of whom are members of the medical profession.

CHARLES ARTHUR DIXON, M.R.C.S. ENG., L.R.C.P. LOND.

BY the death of Mr. Charles A. Dixon on Feb. 6th at the age of 30 years the medical profession in Leeds has sustained a severe loss, his career from early student days down to the time of his enforced retirement from active work having been one of great promise. His good work at the hospital under the late Mr. McGill gave him an early reputation in medical circles and in later years he built up a large practice. He was one of the first anæsthetists appointed to the Leeds Infirmary and discharged the anxious duties of that responsible office in a manner which won for him the respect and admiration of those with whom he worked. Unfortunately, however, an attack of influenza followed by pleurisy cut short his onward progress. After passing through a prolonged illness it was thought best for him to seek a milder climate and he undertook a voyage to the Cape, intending to settle there. On the outward journey, however, his strength began to fail and on landing symptoms developed themselves which compelled him to obtain advice, which was to the effect that he ought to return home at once. A week later found him again on board; a very rough voyage hastened the end and he was landed at Southampton in a dying condition. His relations met him and there was little more than time to say farewell, for two days later he died. Those who knew Charles Dixon's sterling honest upright character feel that they have lost a friend whose memory will remain.

SAMUEL LEONARD CRANE, M.D. PENN., M.R.C.S. ENG., C.M.G.

THE death is announced on Jan. 25th of Dr. Samuel Leonard Crane. The deceased was born in 1830, graduated as M.D. of the University of Pennsylvania in 1850, and became a Member of the Royal College of Surgeons of England in 1855. He was Surgeon-General of Trinidad from 1871 to 1893, superintendent medical officer for Jamaica from 1893, and a member of the Legislative Council from 1894. In 1888 he was made a Companion of St. Michael and St. George.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Karl Schönlein, of the Naples Zoological Station. He was born in 1858 and studied in Halle. He was afterwards assistant to Professor Fick in Würzburg and for a couple of years acted as Professor of Physiology in the University of Santiago, Chili. Since 1892 he had been in charge of one of the divisions of the Naples Zoological Station. His published papers dealt principally with the physiology of the nervous and muscular systems.—Dr. Joseph Finger, Emeritus Professor of Medicine in Lemberg, at the age of 80 years.—Dr. Denis Monier, Professor of Biological Chemistry in the University of Geneva.—Dr. Wolfhügel, Professor of Hygiene and Bacteriology in the University of Göttingen.—Dr. Thomas, formerly Clinical Professor of Medicine in the Rheims Medical School.—Dr. Leon Pluymers, Assistant in the University of Liége.—Dr. Joseph Ritter von Maschka, formerly Professor of Forensic Medicine in the German University of Prague, a post which he held from 1858 to 1891. He was exceedingly popular both with students and with the laity and was at various times elected to important and honourable posts by his professional and professorial colleagues. He was in his seventy-ninth year.

LITERARY INTELLIGENCE.—Mr. H. K. Lewis will publish immediately the Lumleian Lectures, "On the Principles which Govern Treatment in Diseases and Disorders of the Heart," by Sir R. Douglas Powell, Bart., M.D. Lond. The same publisher has also in the press a new work by Mr. J. W. Taylor, F.R.C.S. Eng., on "Extra-Uterine Pregnancy," also a work by Dr. Maro Tuchmann "On the Exploration of the Urethra and Bladder." Both of these works will be fully illustrated.

VACCINATION LITERATURE.—At the meeting of the Cirencester Board of Guardians held on Feb. 15th it was stated that an answer had been received from the Local Government Board in reply to a letter from the guardians asking whether they had power to incur the expense of purchasing and distributing literature in favour of vaccination. The Local Government Board wrote that, assuming this literature to consist of pamphlets and leaflets and to be issued by some responsible authority on the subject, the Board would have no objection to the guardians incurring reasonable expense in obtaining the same and distributing it in the union. The guardians decided to send a copy of the letter to Dr. Bond, the medical officer of the union and honorary secretary of the Jenner Society, asking him to send the necessary pamphlets for distribution.

Public Health and Poor Law.

LOCAL GOVERNMENT DEPARTMENT.

REPORTS OF INSPECTORS OF THE MEDICAL DEPARTMENT OF THE LOCAL GOVERNMENT BOARD.

On Persistence of Enteric Fever in the Swinton and Pendlebury Urban District and on the Sanitary Circumstances and Administration of the District, by Dr. THEODORE THOMSON.[1]—At a time when much attention is being given to the causation of endemic typhoid fever, accounts such as Dr. Thomson gives of the circumstances of the Swinton and Pendlebury district, where for 10 years past there has been a sustained attack-rate and a correspondingly high mortality from this disease, will be read with exceptional interest. This district lies some four miles to the north-west of Manchester and it had a population at the last census of 21,637. The inhabitants are for the most part colliers, weavers, and cotton-spinners, and nearly all the houses in the district are inhabited by persons of the working class. The district stands upon drift—principally glacial sand—overlying the coal measures. Mortality statistics given by Dr. Thomson for the period 1888–1897 show that as a whole the death-rate from all causes in Swinton and Pendlebury is much the same as that of England and Wales. The zymotic death-rate in the former, however, is materially higher, while the death-rate from enteric fever plus continued fever is more than double the "fever" rate in the 33 great towns and two and a half times that of England and Wales. In dealing with attacks of enteric fever Dr. Thomson contrasts the annual attack-rate from enteric fever (as shown by notification returns) in Swinton and Pendlebury with corresponding rates in certain towns during the five years 1893–97. In the former case the annual attack-rate per 1000 of population during the period 1890–1897 was no less than 2·13. In the latter case the statistics are, so far as we are aware, new, and they have so high a value as standards of comparison that we quote Dr. Thomson's table in full.

Towns.	Annual attack-rates per 1000 from enteric fever during the five years 1893–97.	Towns.	Annual attack-rates per 1000 from enteric fever during the five years 1893–97.
Aston Manor	0·94	London	0·77
Barnsley	3·03	Macclesfield	0·67
Barrow-in-Furness ...	0·81	Merthyr Tydfil	2·21
Bath	0·32	Middlesbrough	2·41
Birmingham	1·00	Newport (Mon.)	0·98
Bournemouth	0·19	Northampton	0·41
Bradford	0·73	Oxford	0·47
Bristol and St. George	0·62	Plymouth	0·45
Burton-on-Trent ...	1·07	Salford	1·80
Cambridge	1·15	St. Helens (Lancs.) ...	2·68
Cardiff	0·56	Sheffield	1·54
Carlisle	0·42	Smethwick	0·77
Colchester	0·53	Southampton	0·96
Coventry	0·65	Southport	0·81
Darlington	1·61	South Shields	1·35
Devonport	0·64	Stockport	1·37
Dover	0·36	Tottenham	1·52
Eastbourne	0·69	Tynemouth	0·93
Exeter	1·65	Walsall	1·01
Gloucester	0·72	Walthamstow	1·59
Grimsby	2·96	West Bromwich	1·42
Hornsey	0·60	West Hartlepool ...	0·95
Hull	1·60	Wolverhampton ...	1·44
*Leeds	1·09	Worcester	0·76
Leyton	1·29		
Liverpool	2·17	Fifty towns ...	1·03

* Leeds from 1895–1897 only.

[1] London: Eyre and Spottiswoode, East Harding-street; Edinburgh: John Menzies and Co.; Dublin: Hodges, Figgis, and Co. Price 3*d*.

In Swinton and Pendlebury the water-supply is the same as that of Manchester. It is obtained from Thirlmere, and may be regarded as free from suspicion of conveying enteric fever infection. This is merely a repetition of the experience of numerous other localities where notwithstanding water supply of undoubted purity typhoid fever is endemic. The sanitary circumstances with which the prevalence of enteric fever is associated in this district are such as freely conduce to soil pollution—"unpaved and badly paved yards, allowing refuse, both liquid and solid, to pollute the ground; defective house and yard drains, bringing about a like result; and, above all, large privy middens containing the accumulated excreta of months, much of the more liquid part of which soaks into and fouls the neighbouring soil. In addition to the fouling of the soil thus brought about by these middens, pollution of the ground surface takes place each time they are cleansed, by reason of their contents being cast upon passages and streets and left there pending the removal of these matters by the nightsoil cart." These defects, as well as many others enumerated by Dr. Thomson, show that the district council can hardly be excused from charges of indifference to the public health of their district. Administration by the sanitary department appears to have been lax, although latterly there has been some improvement. But evidently satisfactory progress cannot be expected until a larger staff has been provided. The local authority contracts with Manchester and with Salford for hospital isolation of infectious cases, but to what extent their enteric fever cases are usually isolated in hospital does not seem to have been determined. Dr. Thomson lays stress upon the association of enteric fever with neighbourhoods inhabited by the working classes and the poorer classes. To what extent poverty and dirt, apart from any special association with polluted soil, faulty drainage, accumulation of excrement near dwellings, and the like, conduce to enteric fever infection, and what is their share in endemic enteric fever, are interesting questions. The report shows clearly how great the influence of soil pollution has been. Dr. Thomson's observations on this subject bring home to the reader the need there is for investigations of the kind which he has pursued in Swinton and Pendlebury in a large number of districts where enteric fever is endemic with a view to determining what are the essential factors which go to make up a condition of soil which is capable of harbouring the typhoid bacillus from year to year. Comprehensive inquiry in this matter, supplemented by laboratory investigations, might, we think, be instituted with great advantage by the central public health department of the country.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

Carlisle Urban District.—Mr. William Brown, the medical officer of health of this district, furnishes some interesting information in his current annual report as to dealing with tuberculosis in Carlisle. An experienced veterinary surgeon has been appointed who examines all the dairy cattle in the district once every three weeks and he also makes a careful examination of all cows newly received into the Carlisle cowsheds. Since this appointment six cases of tubercle of the udder and six cases of mammitis have been detected. The tuberculin test is, too, being looked upon with favour in Carlisle and cows found to have tuberculosis of the udder are either slaughtered or removed out of the district where apparently they may still yield milk which eventually reaches Carlisle. Mr. Brown tells us that the statistics of the Carlisle public slaughter-house have brought out the fact that cows of the shorthorn breed are very prone to general tuberculosis and he exhorts dairymen to select some other breed less liable to this disease. He recommends the Scotch Galloway or the cross-bred blue-grey kinds. Mr. Brown thinks that phthisis should be notifiable and he is of opinion that medical men would willingly supply the necessary information.

Thingoe Rural District.—The Thingoe Board of Guardians, which is nearly identical with the district council, passed at their last meeting in 1898 a resolution expressing their opinion that great danger has arisen by virtue of the conscience clause in the Vaccination Act of 1898 and requesting the Local Government Board to reconsider the vaccination laws with a view to making them compulsory. We are glad to see this board of guardians taking a decisive action and although we doubt whether this representation will have the effect which they desire it may do something towards promoting a Bill for revaccination which in the present state of affairs is much to be desired.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 33 of the largest English towns 7028 births and 4275 deaths were registered during the week ending Feb. 18th. The annual rate of mortality in these towns, which had increased in the three preceding weeks from 17·0 to 21·9 per 1000, declined again last week to 19·5. In London the rate was 19·3 per 1000, while it averaged 19·7 in the 32 provincial towns. The lowest death-rates in these towns were 10·5 in Leicester, 12·1 in Huddersfield, 14·5 in Portsmouth, and 14·9 in Cardiff and in Hull; the highest rates were 25·4 in Birkenhead, 27·7 in Salford, 27·9 in Liverpool, and 28·8 in Preston. The 4275 deaths in these towns included 340 which were referred to the principal zymotic diseases, against 340 and 403 in the two preceding weeks; of these, 92 resulted from whooping-cough, 88 from diphtheria, 64 from measles, 41 from "fever" (principally enteric), 32 from diarrhœa, and 23 from scarlet fever. No death from any of these diseases occurred last week in Huddersfield; in the other towns they caused the lowest death-rates in Plymouth, Leicester, and Bradford, and the highest rates in Swansea, Birkenhead, Manchester, and Halifax. The greatest mortality from measles occurred in Manchester; from whooping-cough in Cardiff, Nottingham, Birkenhead, Halifax, and Sunderland; and from "fever" in Gateshead. The mortality from scarlet fever showed no marked excess in any of the large towns. The 88 deaths from diphtheria included 40 in London, eight in Sheffield, five in West Ham, five in Swansea, four in Birmingham, four in Liverpool, three in Birkenhead, and three in Leeds. No fatal case of small-pox was registered last week in any of the 33 large towns, and no small-pox patients were under treatment in any of the Metropolitan Asylum Hospitals. The number of scarlet fever patients in these hospitals and in the London Fever Hospital on Saturday last, Feb. 18th, was 2587, against numbers declining from 2939 to 2642 at the end of the seven preceding weeks; 202 new cases were admitted during the week, against 220, 265, and 253 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had been 348 and 381 in the two preceding weeks, declined last week to 413, and were 63 below the corrected average. The causes of 48, or 1·1 per cent., of the deaths in the 33 towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Salford, Bradford, Leeds, Hull, and in 15 other smaller towns; the largest proportions of uncertified deaths were registered in West Ham, Swansea, Liverpool, and Preston.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in the eight Scotch towns, which had increased in the four preceding weeks from 21·3 to 31·2 per 1000, declined again to 28·0 during the week ending Feb. 18th, but exceeded by 8·5 per 1000 the mean rate during the same period in the 33 large English towns. The rates in the eight Scotch towns ranged from 18·0 in Dundee and 18·6 in Perth to 32·5 in Greenock and 34·5 in Paisley. The 855 deaths in these towns included 31 which were referred to whooping-cough, 14 to diarrhœa, 11 to scarlet fever, nine to measles, seven to "fever," and four to diphtheria. In all, 76 deaths resulted from these principal zymotic diseases, against 95 and 101 in the two preceding weeks. These 76 deaths were equal to an annual rate of 2·5 per 1000, which was 0·9 above the mean rate last week from the same diseases in the 33 large English towns. The fatal cases of whooping-cough, which had been 43 and 37 in the two preceding weeks, further declined to 31 last week, of which 11 occurred in Glasgow, 10 in Edinburgh, and four in Leith. The deaths referred to scarlet fever, which had declined from 14 to six in the three preceding weeks, rose again to 11 last week, of which seven were recorded in Glasgow. The nine fatal cases of measles showed a marked decline from recent weekly numbers, and included five in Glasgow, two in Edinburgh, and two in Aberdeen. The deaths referred to different forms of "fever," which had been two and eight in the two preceding weeks, were seven last week, of which six occurred in Glasgow. The deaths from diseases of the respiratory organs in these towns, which had been 282 and 346 in the two preceding weeks, declined to 285 last week, but were as many as 194 above the number in the corresponding period of last year. The causes of 30, or nearly four per cent., of the deaths in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 31·8 and 31·6 per 1000 in the two preceding weeks, further declined to 27·3 during the week ending Feb. 18th. During the past four weeks the rate of mortality in the city has averaged 28·9 per 1000, the rate during the same period being 19·3 in London and 25·9 in Edinburgh. The 183 deaths registered in Dublin during the week under notice showed a decline of 29 from the number in the preceding week, and included eight which were referred to the principal zymotic diseases, against 10 and eight in the two preceding weeks; of these, four resulted from whooping-cough, two from diphtheria, and two from "fever," but not one either from small-pox, measles, scarlet fever, or diarrhœa. These eight deaths were equal to an annual rate of 1·2 per 1000, the zymotic death-rate during the same period being 1·6 in London and 2·4 in Edinburgh. The fatal cases of whooping-cough, which had declined from five to two in the three preceding weeks, rose again to four last week. The two deaths from diphtheria exceeded the number in any recent week. The deaths referred to different forms of "fever," which had been one and four in the two preceding weeks, declined again to two last week. The 183 deaths in Dublin last week included 27 of infants under one year of age and 58 of persons aged upwards of 60 years; the deaths of infants showed a further marked decline from recent weekly numbers, while those of elderly persons were within one of the number recorded in the preceding week. Six inquest cases and three deaths from violence were registered; and 63, or more than a third, of the deaths occurred in public institutions. The causes of 14, or nearly 8 per cent., of the deaths in the city last week were not certified.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are announced: — Staff Surgeons: F. J. Lilly to the *Resolution;* W. Tait to the *Colossus;* and J. R. MacDonnell to the *Mars.* Surgeons: W. Bowden, D.S.O., to the *Trafalgar*, and R. H. Mornement to the *Eclipse.*

ROYAL ARMY MEDICAL CORPS.

The under-mentioned Surgeons on probation to be Lieutenants: Harold Percy Waller Barrow, John Edward Hodgson, Alic Lawiston Scott, Lionel Edmund Longworth Parker, James Geoffrey Gill, George William Grey Jones, Matthew Henry Gregson Fell, Gerald Hamilton Goddard, William Bertram Winkfield, Thomas Champion Lauder, Jonas William Leake, John William Hobart Houghton, Duncan Edward Curme, Herbert Stockley Taylor, George Mills Goldsmith, Richard Harte Lloyd, David Harvey, John Macfarlane Sloan, Henry Evered Haymes, Francis John Brakenridge, George Constantine Phipps, Nathaniel John Crawford Rutherford, Gilbert John Anthony Ormsby, Harry Dixon Packer, Lawrence Humphry, Robert Stuart Rodger, William Watson Scarlett, Horace Kemp Palmer, Arthur Oliver Bird Wroughton, and Frank Ashe.

Colonel J. A. Clery, R.A.M.C., is appointed Principal Medical Officer, Thames and Woolwich districts, vice Colonel R. P. Ferguson. Colonel A. W. Duke, R.A.M.C., is appointed Principal Medical Officer, North-Western District. Lieutenant R. E. G. Phillips joins at Woolwich for duty. Major L. P. Mumby has embarked for India. Major H. J. Barnes assumes medical charge of officers and their families, women and children, at Colchester. The following officers have been posted as follows: Lieutenant-Colonel Carey and Major Berryman to Bengal, Major Marder to Madras, and Major Stables to Bombay.

ARMY MEDICAL RESERVE OF OFFICERS.

Surgeon-Captain Andrew Arthur Abraham, 5th Volunteer Battalion the Durham Light Infantry, to be Surgeon-Captain.

INDIAN MEDICAL SERVICE.

The Queen has approved of the restoration of Captain

John Plowden Morton, Madras Establishment, from the Half-pay List to the Effective List.

VOLUNTEER CORPS.

Rifle: 2nd (Prince of Wales's) Volunteer Battalion the Devonshire Regiment: Surgeon-Lieutenant C. C. Brodrick resigns his commission. 4th Volunteer Battalion the Devonshire Regiment: Surgeon-Lieutenant E. H. Sutcliff resigns his commission. 1st Volunteer Battalion the Royal Scots Fusiliers: Surgeon-Lieutenant-Colonel J. McAlister retires under the provision of Paragraph 111 of the Volunteer Regulations, 1898, with permission to retain his rank and to continue to wear the uniform of the battalion on his retirement. 1st Surrey (South London): Richard Jocelyn Swan to be Surgeon-Lieutenant. 1st Wiltshire: Surgeon-Lieutenant P. J. Barcroft resigns his commission.

"THE TRANSPORT OF SICK SOLDIERS."

The above subject was referred to in this column last week. The correspondence has been continued in the *Morning Post* by "Surgeon-Major" who agrees for the most part with our contemporary's previous correspondent and incidentally characterises the military arrangements at the Hospital of Hong-Kong as a "disgrace to civilisation." He however agrees with our contention that it is the War Office who are to blame. He says: "But the blame must not be laid on the Army Medical Service, for as matters now stand it is powerless to enforce its own recommendations, the War Office having the right of veto on all matters medical; the saddle must therefore be fitted to the right horse. As I have already stated, I have seen the working of army hospitals in several other countries, and I have no hesitation in stating that our War Office would be well advised if it put some of its obstinate pride in its pocket and went to France, Germany, Japan, Italy, or even Portugal, for some novel, practical, and humanitarian ideas as to how military hospitals should be equipped and worked, for I regret to say that Great Britain is nearly half a century behind the times in this respect. ..... Let the Director-General of this department be given a free hand and then held responsible to the nation for his stewardship. Anything short of this will only land the department in hopeless disaster in a big war."

THE POST OF SURGEON-GENERAL OF HER MAJESTY'S FORCES IN INDIA.

Surgeon-General Gore has arrived in this country from India on having completed his tour of service as principal medical officer in that command. As we have already announced he will be succeeded by Surgeon-General W. Taylor, C.B., who is leaving England to take up the appointment vacated by Surgeon-General Gore. The rumours as to the abolition of the separate post of Surgeon-General of Her Majesty's forces in India and its amalgamation with that of the office of the head of the Indian Medical Service were, as we predicted would be the case, without foundation. Colonel Townsend, R.A.M.C., is officiating in the appointment pending the arrival of Surgeon-General Taylor.

SEA TRIPS FOR SICK SOLDIERS.

We learn (on the authority of the *Times of India*) that the Indian Government have accepted the proposal to send sickly British soldiers on sea trips in Indian Marine vessels this season whenever it is possible to find room for such men. We congratulate the Indian authorities on their decision, for it is quite a step in the right direction from a medical and hygienic point of view.

THE POST OF PRINCIPAL MEDICAL OFFICER IN EGYPT.

It has, we believe, been settled that a Surgeon-General is no longer needed for the medical direction of the British Forces in Egypt and that Surgeon-General Price who was to have succeeded Surgeon-General Skey Muir will not do so, but that an officer of the rank of Colonel of the Royal Army Medical Corps will be nominated to the post.

DEATH IN THE SERVICES.

Deputy Surgeon-General Henry R. L. MacDougall, Bombay Army (retired), at Dunollie, Oban, on Feb. 9th, in his sixty-fourth year.

The following officers of the Royal Army Medical Corps on their arrival in India are to be posted as follows: Lieutenant-Colonel Carey and Major Berryman to Bengal, Major Marder to Madras, and Major Stables to Bombay.

Correspondence.

"Audi alteram partem."

DIFFICULTIES UNDER THE NEW VACCINATION ACT.

To the Editors of THE LANCET.

SIRS,—I was lately required by the usual notice from the vaccination officer of a union in which I am one of the public vaccinators to visit and offer to vaccinate a child in my district residing, according to the notice, five miles from my own residence. I gave the statutory notice by post and in due course made an express visit to the stated place of abode but found no such child resident there. I was informed that the family had removed into another union some 10 or 12 miles distant. Am I not entitled to claim from the guardians in addition to the usual 1*s.* fee payment for my express journey, so fruitless, by some carelessness on the part of their vaccination officer? I shall claim 5*s.* at the end of the quarter.

I am, Sirs, yours obediently,
W. ROBERTSON.

Glanton, R.S.O., Northumberland, Feb. 15th, 1899.

*** The Vaccination Order of 1899 makes no provision for such a case, and such an occurrence, under ordinary circumtances, should not be possible. The vaccination officer is only allowed to place on the list which he sends to the public vaccinator the names of children to whose houses he has himself just paid a personal visit, and the vaccination officer's action in this matter calls for inquiry. Then, again, a fortnight is given to the public vaccinator in which to make his visits for the purpose of offering to vaccinate children, and the fee of 1*s.* per visit was based on the assumption that he would so arrange his work that all the cases in one direction or locality would be visited on the same day. If our correspondent had a 10 miles' journey to and fro and could only make one such visit, then his district is one as to which it is quite certain that the Local Government Board would on his application grant more than the minimum fees of 1*s.* and 5*s.*; indeed, they are stated to have done so already in a considerable number of cases.—ED. L.

To the Editors of THE LANCET.

SIRS,—If I read Section 1, sub-section (3) of the Vaccination Act of 1898 aright the public vaccinator referred to by your correspondent "L.R.C.P., M.R.C.S." in THE LANCET of Feb. 18th was not only acting strictly within his rights, but he was performing the duty most plainly imposed upon him by the terms of that much-discussed measure. "Fathers in lucrative business" are not exempt from the operation of the Act—dukes and crossing-sweepers alike must own its sway. Yet I feel sure it needs only the relation of a few more such experiences as those of "L.R.C.P., M.R.C.S." and of your other correspondent "P.V." to convince our legislators that the Act is thoroughly unworkable in actual practice. We can but hope that the letters of these two gentlemen may do something to aid the movement for its repeal.

I am, Sirs, your faithfully,
Feb. 19th, 1899. M.B. EDIN.

To the Editors of THE LANCET.

SIRS,—A letter appeared in THE LANCET of Feb. 18th, under the above heading in which "L.R.C.P., M.R.C.S." complains of the public vaccinator of his district. If "L.R.C.P., M.R.C.S." would read through the Local Government Board's Orders under the Vaccination Acts, 1867-1898, he would become aware that his public vaccinator had only carried out those Orders. The work under the new Act, I know, is distasteful to all concerned, not only to parents and family medical attendants, but also to the public vaccinator, who should not be found fault with for doing his duty because that happens to be disagreeable to others besides himself. "L.R.C.P., M.R.C.S." complains of notices of intention

to visit and offer to vaccinate being sent to patients "*irrespective of their position*"; the reply is obvious—the only distinction of persons made in the Act is as between those who have been vaccinated before reaching the age of four months (or who hold an exemption certificate or are dead) and those who have not been vaccinated at that time of life. The reply to what is left of the letter is this. Had "L.R.C.P., M.R.C.S." not omitted to renew his postponement when the previous postponement lapsed the vaccination officer would not have sent his patient's name to the public vaccinator and all the sequelæ to which exception is taken would have been avoided, and "L.R.C.P., M.R.C.S." would not have had the present opportunity of expressing his opinion upon the working of the Local Government Board's Orders to vaccinators under contract. One word on the general subject. If medical men who are not public vaccinators would only remember that the latter only carry out orders that they had no hand in framing and which they find are frequently very distasteful it might save much friction and unjust feeling.

I am, Sirs, yours faithfully,

Feb. 21st, 1899. PUBLIC VACCINATOR.

To the Editors of THE LANCET.

SIRS,—It is with much satisfaction I read that some public vaccinators find the new duties they have voluntarily undertaken irksome. I hope they will continue to find them so, for such work is opposed to the ethical laws which rule our profession and it is satisfactory to read that law-breaking brings its own reward. If a public vaccinator may call on people of whom he knows nothing except that they have a child unvaccinated and offer his professional services, then I may call at any house where I hear there is measles and offer my professional services. The public vaccinator accepts the work for the sake of the pay and I might call on a case of measles for a similar reason. If one is unprofessional conduct, the other must be so too.

Most private practitioners by this time have had experience of the public vaccinator calling on sick children, examining them and offering to postpone the operation, quite oblivious of the fact that to examine a patient under another's charge is grossly unprofessional. This outrageous act is compared to the Notification of Infectious Diseases Act, but there is no comparison from an ethical point of view. The latter Act does not seek to legalise "cadging" or encourage it by offering a reasonably good fee if successful and a ridiculous one if unsuccessful. I fail to see how we are to prevent the younger members of our profession from touting for patients with the example of the public vaccinator before their eyes. "S.E. District" thinks it even part of his duty to examine and criticise the work of the medical man in charge. I doubt if the supporters of the Act ever dreamt of well-to-do people being urged to be vaccinated at the expense of the rates. It is another drop in the bitter cup of the private practitioner that he has to contribute to the rates which pay his rival for attending the private practitioner's patients. My hope is that the Act is too outrageous and objectionable in every way to last long and I hope all private practitioners will point out its errors to as many electors and Members of Parliament as they can, and perhaps we may live to see it repealed.

I am, Sirs, yours faithfully,

Feb. 21st, 1899. P. P.

To the Editors of THE LANCET.

SIRS,—Your correspondent "L.R.C.P., M.R.C.S.," evidently does not understand the new duties of a public vaccinator. These are irrespective of the financial position of a child's parents and are clearly defined by the Local Government Board in their General Order dated Oct. 18th, 1898. Firstly, the public vaccinator has to visit and vaccinate all those who desire his services, rich or poor. Secondly, when an unvaccinated child is four months and a week old, if the vaccination officer receives no certificate of postponement or of exemption or of insusceptibility and the child has not had small-pox the name goes on a list which is forwarded to the public vaccinator who has thereupon to visit the child, first sending a notice of his intention to do so, and offer to vaccinate it. If the offer is not accepted there is an end of his duty; if it is accepted the vaccination must be postponed if necessary. I take it the child "L.R.C.P., M.R.C.S." alludes to was over four months old and the name in that case would go on the list referred to above. Possibly the certificate of postponement reached the vaccination officer after he sent the list to the public vaccinator who, of course, should not call again if his offer is refused or if he finds the vaccination has been postponed by the medical attendant. Under certain circumstances the name might appear again on a subsequent list; in this case the public vaccinator would have to act as before—notice, visit, and offer, even if on the previous occasion the offer was refused.

In THE LANCET of Feb. 18th is also a letter giving "The Experiences of a Public Vaccinator." I would like to say that mine, as far as they go, do not agree with these. I have had nothing unpleasant happen and have had 50 names of children sent me to visit and make "the offer" and with "requests from parents" over 100, and in my district I think the new plan is generally liked, especially the domiciliary arrangement. I think with "P.V." that it would be a capital thing if before sending the list it could be found out who wished to accept his services and I quite agree with him as to the very large amount of work under the new regulations.

I am, Sirs, yours faithfully,

Feb. 20th, 1899. ANOTHER "P.V."

To the Editors of THE LANCET.

SIRS,—Is it four marks, three marks, two marks, or one mark? As public vaccinator I have had to call on my brother practitioners' patients and offer to vaccinate and I am asked how many places. I say four and am told that they prefer to have their child done in two places by another medical man. Surely those who frame the law must see that such action must seriously affect the protective statistics of vaccination and play into the hands of the anti-vaccinationists I call these "half-breeds," as they will not take advantage of the conscience clause and yet are so-called vaccinated.

I am, Sirs, yours faithfully,

Feb. 15th, 1899. PUBLIC VACCINATOR II.

To the Editors of THE LANCET.

SIRS,—There is practising in our town an M.D. and J.P. who has recently been appointed parish doctor and public vaccinator. Would you consider it in accordance with the traditions of the medical profession for the above to be calling on the patients of other medical men who have been recently confined and asking them if they would care to have their children vaccinated by him or by their own medical attendant?

I am, Sirs, yours faithfully,

Feb. 14th, 1899. M.B.

*** This correspondence touches upon many points which are receiving our attention.—ED. L.

THE MIDWIVES BILL OF THE BRITISH MEDICAL ASSOCIATION.

To the Editors of THE LANCET.

SIRS,—The question of legislation on behalf of midwives is about to enter upon its last stage. From the very first the promoters of legislation have sought the protection of the woman of the diploma. Later, the opponents of legislation sought the control of all women who attended cases of labour whose names were not upon the Medical Register. The proposed legislation is a compromise. An experience of the subject which may fairly be claimed to be many-sided has led me more and more to the firm belief that if the public weal is to be considered of the first importance any legislation which invests uneducated women with a diploma entitling them to practise midwifery, even under restrictions, is fraught with very great danger; my own experience is further supported by the facts frequently published in the newspapers. It is perhaps of some utility to consider how the present state of affairs originated. The Obstetrical Society of London—or, to be correct, its council—has for many years sold a diploma to those who passed an examination. It has also been the main fomenter of agitation in favour of the midwife from the outset. The proposal for legislation has therefore come from the medical profession or from part of it. The society, judging from Dr. Cullingworth's address, has sold its diploma without any code of rules and regulations to be observed by midwives holding it until the present year.

It is a matter of difficulty to distinguish between the

society which covers the practice of midwifery by persons who are not upon the Medical Register by means of a diploma from which an income is derived and medical practitioners who cover the practice of unqualified assistants and derive an income from their work. However, the position of affairs now arrived at is this: registered practitioners individually are not allowed to employ unqualified assistants. Associations of registered practitioners are allowed to cover the practice of unqualified practitioners in midwifery by means of a diploma from the sale of which some registered practitioners derive profit. To put matters in order legislation is demanded by such associations and actively pushed forward.

The main body of the profession, at first somnolent, is at last roused and protests and in the result a compromise is so far embodied in a Bill. It is a matter of common notoriety that the restrictive clauses inserted by the British Medical Association are practically not accepted by the principal promoters of legislation, and moreover that the House of Commons is not a body which is likely to pass restrictive clauses in such a Bill. If a case is made out for the resuscitation of the midwife the House of Commons will probably not restrict her practice. This condition of affairs is, indeed, serious, and it is not easy to find a remedy so late in the day. The birthright of the medical profession has been sold for a mess of diplomas to midwives. If it had not been useful legislation might have been put forward solely upon the basis of control over the practice of all persons who practised midwifery and who are not registered medical practitioners, and legislation upon this basis would have had nothing but support from the medical profession. However this may be, I do not believe for an instant that any attempt to pass the restrictive clauses in the present Bill will be successful, and as a matter of strategy if the medical profession desires to secure the insertion into the Bill of proper restrictions it will have to make it clear to the Members of the House of Commons that control over the practice of midwives is what is required and not the formation of a midwife *brigade* sanctioned by Act of Parliament.

If the present Bill is passed I can see no end to the practical difficulties of its working. A Bill of very few clauses could be framed to control the midwife and to effectually protect the ignorant. It required a Bill of the present size to conceal the intentions of the real promoters and to do a great deal of harm.

I am, Sirs, yours faithfully,

Hatfield, Feb. 21st, 1899. LOVELL DRAGE.

To the Editors of THE LANCET.

SIRS,—Judging from your leading article in THE LANCET of Feb. 18th it does not appear that you consider a "Midwives Bill" altogether desirable. I cannot help regretting that the influence of your important journal was not rather employed in opposing than in apologising for the proposed legislation. While admitting that the Midwives Bill of the British Medical Association is better than any of the other Bills hitherto put forward I thought it my duty to oppose it when before the Parliamentary Bills Committee for the following reasons: (1) because the great majority of the medical profession are opposed to any such Bill; and (2) because in my opinion it increases the public danger rather than lessens it.

The midwife, especially when occupying the responsible position in which such legislation will place her, can always justify her omission to summon medical assistance in unnatural labour by pleading that she thought the labour was normal. Experienced medical practitioners cannot always diagnose unnatural conditions during childbirth at an early stage and sometimes have to confess that they have lost valuable time through such mistakes. How, then, can it be expected that even the best of the proposed registered midwives should be able to avoid them? It has been repeatedly shown that the medical practitioners in the country are amply sufficient to attend to all cases of labour, and it seems to me that the better policy would be to limit the practice of midwives rather than to extend it, as any such legislation as this must inevitably do. No matter how we look at it, a registered midwife will be a State-recognised practitioner of midwifery; and if the Act of 1886 laid down any principle it was that practitioners in one branch of medicine should cease to be licensed by the State. This principle has been unanimously accepted by the profession and it seems most impolitic to weaken it by legislating in the opposite direction. It is very unlikely that any Midwives' Bill will be seriously considered by Parliament this session, and were the profession united in its opposition I believe it might be defeated altogether. The education of midwives is improving yearly and will continue to do so without further legislation; a system, too, of local registration would do much of the good that this Bill proposes and would not be open to nearly so many objections.

I am, Sirs, yours faithfully,

MAJOR GREENWOOD, M.D. Brux., LL.B. Lond.

Feb. 20th, 1899.

"A FATAL CASE OF LITHÆMIC POISONING."

To the Editors of THE LANCET.

SIRS,—Dr. C. R. Elgood's admirably written "Note on a Fatal Case of Lithæmic Poisoning" in THE LANCET of Feb. 18th raises one or two interesting points. In the first place I am doubtful as to whether the case is quite correctly designated as one of lithæmic poisoning—i.e., as being due to the poisonous effects of uric acid or its compounds while in solution in the blood. In my opinion, judging from the graphic description given by Dr. Elgood, the recurrent attacks were due to irregular gout, and as such were probably caused by deposition of sodium biurate in the organs and tissues affected. This view is borne out by the patient's strong family history of gout, by the nature of the attacks, by the extreme anorexia, by the condition of the pulse, by the occurrence of venous thrombosis during two of the attacks, and by the occurrence between the seizures of what were in all probability two slight attacks of regular gout in the great toe. My own view entirely coincides with that of Sir William Roberts that as long as uric acid, whether in the form of sodium quadriurate or biurate, is in solution in the blood it exerts no toxic effect. The other interesting point is as to whether there was in this case any increase in the elimination of urates. I believe that it is frequently misleading to infer that the elimination of uric acid is increased, because small quantities of urine laden with amorphous urates are passed. In this case during the attacks the quantity of urine eliminated apparently averaged about 20 ounces only and was of high specific gravity. I have frequently found among gouty and other patients who have been passing similar small amounts of urine laden with amorphous urates that on estimating the total output of uric acid for each 24 hours it has been found considerably below the normal output.

I am, Sirs, yours faithfully,

ARTHUR P. LUFF, M.D. Lond.

Weymouth-street, W., Feb. 20th, 1899.

"SEWER VENTILATION."

To the Editors of THE LANCET.

SIRS,—Your brief editorial notice of the dangers arising from the foul air discharged from the sewers and their ventilation pipes revives a recollection of a project which I started in 1858. At that time I was medical officer of health of Shoreditch, then a typical insanitary district. I venture to send you a brief summary of my action in the matter. The practical study of sewers—I spent some hours in main sewers amongst other experiences—led me to consider whether some effective means could not be found to lessen the noxious properties of the gases as they escape from the sewers. It appeared to me that the absorptive property of animal charcoal might be turned to account. I proposed that cages of iron containing a layer of coarsely divided animal charcoal, through which all the air emerging should filter, be fitted to the gullies. There are many places where such cages might be fitted without difficulty. In an analogous manner the plan largely adopted of relieving the sewers of the pressure arising from the accumulation and decomposition by discharge-pipes carried up the sides of high buildings, would be deprived of the serious objection that the gases find their way by diffusion into the upper windows of dwelling-houses. The disposition of charcoal-beds in these pipes would render the gases less obnoxious when discharged. I also suggested on behalf of the men whose occupation compels them to enter the sewers that the effect of Dr. Stenhouse's charcoal respirator should be tried. Afterwards Letheby advocated the same plan. The difficulty

appeared to be to secure the charcoal-filtering apparatus from being choked up with mud. I constructed a design which I believed would obviate this and other objections, so that the principle might be applied at a moderate cost to any gully under the street level, thus avoiding all obstruction to traffic.—I am, Sirs, yours faithfully,

Feb. 18th, 1899. ROBERT BARNES, M.D. Lond.

"THE SURGICAL AID SOCIETY AND ITS METHODS."

To the Editors of THE LANCET.

SIRS,—With reference to Mr. H. Betham Robinson's letter under the above heading in THE LANCET of Feb. 18th will you permit me to say that the letter in question was the first intimation I had had of any dissatisfaction in regard to the case to which he therein alludes, but I am now in correspondence with Mr. Robinson and have no doubt that the explanation of the contingent circumstances will fully satisfy him as to the society's action? In the meantime, may I say for the information of your readers and in answer to the question asked by Mr. Robinson that this society does, as stated in its prospectuses and other publications, accept the certificate of any duly qualified surgeon, and, indeed, a form for that specific purpose is provided at the foot of each letter of recommendation for the benefit of patients who are unable to attend here. It will, however, be evident that this rule, like all others, is liable to exceptions under some special circumstances.—I am, Sirs, yours faithfully,

RICHARD TRESIDDER, Secretary.

Salisbury-square, Fleet-street, E.C., Feb. 21st, 1899.

A MEMORIAL TO THE LATE PROFESSOR KANTHACK.

To the Editors of THE LANCET.

SIRS,—The premature death of Dr. Kanthack has been so much felt by his numerous friends that we have received letters from many quarters suggesting the propriety of raising a fund to commemorate his work. It is probably not generally known that, largely on account of his generous expenditure of money in his various researches, he had not been able during the few years in which he was in receipt of an adequate income to provide sufficiently for his widow.

It is therefore proposed to raise a fund the interest of which shall be devoted to the use of Mrs. Kanthack during her life whilst the capital amount can eventually be employed in founding some permanent memorial to the late Dr. Kanthack. All who desire to contribute to the fund are requested to send subscriptions to Dr. Drysdale, 25, Welbeck-street, London, W.

We remain, Sirs, yours truly,

HENRY T. BUTLIN,
ANTHONY A. BOWLBY,
J. H. DRYSDALE.

"REGINA *v.* REICHARDT."

To the Editors of THE LANCET.

SIRS,—Once more the vexed question of certification or no certification in early stages of actual or threatened mental alienation has forced itself upon the public attention, and it seems, in view of a forthcoming amendment of the Lunacy Acts, as if the present were a favourable time to endeavour to settle it once for all upon a practical, common-sense, and definite basis. There are, of course, a considerable proportion of the cases of mental disorder constantly arising in which even from the commencement the morbid manifestations are of so pronounced a character that doubt does not for one moment arise regarding the proper course to be adopted; with such cases I do not propose here to deal—they do not come within the scope of the present communication. The Lunacy Act, 1890, although by no means a perfect Act in every respect, amply and intelligibly provides for dealing with them. It is, however, an altogether different matter when cases presenting less marked or pronounced symptoms occur in private practice. The ordinary medical attendant may well be at a loss to decide exactly what is best to be done to ensure his patients' well-being and safety consistently with the required "non-publicity," usually a first consideration with families under such circumstances. Naturally, however, he proceeds to do all that he considers necessary for his patient: he may even feel obliged to turn the house temporarily into a kind of asylum, and by placing a sufficient number of attendants or nurses at once entirely deprive the patient of his liberty and ensure his safety. Yet under such circumstances I do not think the necessity for certification or notification would be suggested by anyone. But sooner or later a time probably comes when change from home surroundings is considered a necessity and then the conditions become entirely altered, the question not only of deprivation of liberty, more or less complete, but also of pecuniary payment for services rendered to the patient arises, and I think it is worthy of discussion whether from the moment it is decided to remove a patient from home care to the care of others, be they medical or other custodians, for payment that there should arise the necessity of some notification of the fact to a central authority, just as in all cases of admission to asylums public or private and hospitals such notification is required to be made within 24 hours.

In the absence of some such provision no opportunity is given for adequate supervision of the many hundreds of cases scattered throughout the country in unrecognised confinement, and ample opportunity is thus afforded for abuses, against which the Lunacy Acts, however stringently they may be framed, afford no protection.

I am, Sirs, yours faithfully,

Feb. 14th, 1899. M.D.

THE ACCURACY OF THE MEDICAL REGISTER.

To the Editors of THE LANCET.

SIRS,—I have received a card requesting my interest on behalf of the widow of the late Frederick W. Wilson, M.B. Lond., who died at Blackheath in 1894. This name appears not only in Churchill's Directory for 1899 but in the Medical Register for 1898 published more than three years after the death of Dr. Wilson. I was under the impression that it was part of the duty of a registrar of deaths to send information to the registrar of the General Medical Council of the death of a medical practitioner registered by him. The name does not appear in the general register of the University of London. Why should it be retained in the Medical Register?—I am, Sirs, yours faithfully,

Feb. 20th, 1899. M.R.C.S., L.S.A.

NOTES FROM INDIA.

(FROM OUR SPECIAL CORRESPONDENT.)

Examples of Immunity from Plague.—The Progress of the Epidemic.—The Plague Commission.—A Proposed International Sanitary League.—Inoculation for Typhoid Fever.

EUROPEANS have the reputation of a partial immunity from plague. This seems to be borne out not only with regard to liability to infection but also with regard to their better chances of recovery. Quite apart from racial differences two other classes in Bombay have shown a remarkable immunity during the successive epidemics. These are the prostitutes and the street-sweepers. The former are chiefly resident in one of the most crowded quarters of Bombay and they consist of various races and nationalities. In the absence of any register it is impossible to give the precise numbers, but they are placed by those conversant with the district at between 6000 and 7000. Only one case of plague is said to have occurred among them. The medical officers and visiting justices actively engaged in searching for cases of plague found none among this class. These people come from various parts of India, from Bagdad, from Constantinople, from Persia, from Japan, and from South-eastern Europe. It is not very clear to what they owe their apparent immunity. The houses in which they live are described for the most part as clean, well-lighted, and well-ventilated, the doors and windows being kept open till the small hours of the morning. This alone, however, is not sufficient to account for the occupants escaping infection, because it is said that in the neighbouring streets as many as 27 bodies of the victims of the epidemic have been taken out of a few houses in one morning.

On the other hand, the clean, well-ventilated houses of the richer and more advanced natives have also escaped. It has been suggested that plague is innocuous in the presence of certain other diseases, such as leprosy and syphilis. This is not absolute as regards leprosy because lepers have been recorded as dying from plague. Whether persons suffering from syphilis are exempt from plague is not known. I know of no observations indicating this. One would hardly suppose that syphilis would give a life-long protection against plague even if it had this effect during its primary and secondary stages. That syphilis is very common amongst prostitutes in Bombay is admitted, and it is possible that an individual protection of this character combined with the more sanitary conditions of existence might account for the extraordinary exemption. At one time it was thought that it was not the syphilitic poison which protected against plague but the saturation of the system with mercury and on this basis many plague patients were treated almost to salivation. No beneficial results followed from this line of treatment even when employed hypodermically as well as locally. It is curious to note that at the time of the plague in the sixth century at Constantinople the wicked and the profligate were reported to escape from the ravages of that epidemic.

The other class—viz., the street-sweepers—has had a partial immunity from plague. These people with their families number over 1000. They live in small rooms and are very crowded. Their occupations, however, keep them out of doors. In the three years of the plague the number attacked has only been 21 and of these eight recovered. They were not isolated or segregated as other people were for fear of a general strike amongst the whole class. They are as crowded and as dirty as other people and they live in a plague infected district.

Plague is apparently inclined at the moment to increase again in the north and in the centre of the Bombay Presidency and to disappear from the southern portions. The net result in the week's returns shows a slight increase. There have been 2388 cases and 1872 deaths. The total mortality in Bombay city from all causes for the week ending Jan. 31st was 1601. This is an increase of 153. In all probability 1000 of these deaths were due to plague, because the average weekly death-rate for Bombay is under 600. The deaths actually recorded as of plague were only 538, but little reliance can be placed on the number registered as plague although there were 140 more recorded than for the previous week. This outbreak appears to be about a fortnight later in the season than that of last year and the outbreak of 1897–98 was about six weeks later than the first outbreak of 1896–97. Reports from the hospitals in Bombay show that the type of the disease is now very virulent, that patients are left to the late stages before being brought to the hospital, and that a great many come in a moribund condition.

The death-rate in Madras city is again abnormally high, that for the past week being at the rate of 49·3 per 1000, as against an average of 36·8 per 1000. There is no plague.

There seems to be a likelihood of a recrudescence of the plague in Karachi. Cases have occasionally occurred ever since the last outbreak and Karachi has not been able to clear itself, but during the past week several cases have been heard of in different quarters of the city. Fear has again seized the inhabitants who are beginning to flee in large numbers. The possibility of the obnoxious plague restrictions being re-introduced has hastened the exodus.

The value of railway medical inspections as of port inspections seems to be chiefly in preventing sick people of all kinds from travelling. As regards plague 11 cases only were detected during the week at all the railway inspection stations in the Presidency, so that with respect to this disease all the trouble, expense, and inconvenience involved are not counter-balanced by important results.

The Plague Commission has been at work in Karachi and Cutch Mandvie and will take evidence again in Bombay before leaving for Europe. Very few facts of any importance are reported. Dr. McMullen attributed the recrudescence in Kotri during the cold weather to the bringing out of infected clothing stored away during the summer when the epidemic prevailed. Dr. Mackenzie said that malarial fever was generally common at Karachi but that during the plague visitation there had been a marked decline. Mr. V. E. Nazareth gave an account of the treatment by Roux's serum. He said that 47 persons were inoculated, of whom 25 recovered. It almost invariably failed in pneumonic cases. (The reports do not mention that these cases were picked out and that they were not taken as the consecutive admissions to the hospital.)

Prince Orbeliani, a Russian nobleman, proposes to establish an international sanitary league to supply a complete staff of bacteriologists, medical officers, chemists, and nurses (all of whom have gone through training in actual contact with epidemics) to deal with outbreaks in any country that may be affected. The prince sees no reason for counting absolutely on the supposed immunity of Europeans in the present day against plague which formerly carried off the populations of European cities by the hundred thousand. Large numbers of people in European countries, he argues, live in conditions almost as favourable to epidemics of plague as those that prevailed when London, Moscow, Marseilles, Milan, and Naples were scourged by it. In order to meet a danger which affects all countries alike in large measure it is suggested that the means of resistance should be placed on a better footing than now obtains. He argues that the danger threatening all countries ought to be encountered by the organised sanitary resources of all countries working together for the common safety.

Inoculation against typhoid fever seems so far to have been very successful. Professor Wright (Netley), one of the Plague Commissioners, inoculated a large number of soldiers at Rawal Pindi and in the course of a lecture he gave instances of its value. He reminded his audience that 1500 troops were attacked with it in India every year and that 300 died. He alluded to the Maidstone epidemic and stated that of the 200 nurses and attendants at the lunatic asylum 95 were inoculated, not one of whom took typhoid fever, while of the remainder who refused to be inoculated 19 suffered from the complaint and died. He instanced also eight young subalterns who went to Khartoum. Six of these were inoculated; the other two took their chance. Both of the latter were attacked with fever and one died; the six others remained well. The symptoms following inoculation were malaise and slight fever lasting generally not longer than 24 hours. 3000 troops have now been inoculated.

Feb. 4th.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

Death of Mr. W. T. Crabbe, F.R.C.S. Edin.

THE death of Mr. Crabbe, which took place on Feb. 13th, has caused a deep feeling of regret among a large number of people. Mr. Crabbe, who was 55 years of age, began his professional life with great promise. As a student at Edinburgh he gained a silver medal in physiology and a gold medal in medical jurisprudence, after which he became a Fellow of the Royal College of Surgeons, Edinburgh, and a Licentiate of the Royal College of Physicians, Edinburgh. With prospects of a successful career he devoted his talents to the cause of medical missionary work, and after experience in this direction at Edinburgh and at Aberdeen he was appointed superintendent of the Medical Mission at Birmingham in 1876. Here among the poorest and most destitute he laboured earnestly with unflagging zeal. Under the continued strain of ever-pressing needs his health broke down in 1896, the symptoms being mainly referrible to the liver. A sea voyage and long change failed to restore him to his former energetic condition and though he worked assiduously with the same ardent spirit of devotion he suffered from another attack last December to which, in spite of the greatest care, he succumbed. His life leaves a record of a high sense of duty and an unselfish fidelity to the cause he had so much at heart. He leaves a widow and three sons, two of whom are medical men.

Health Visitors.

The Health Committee have issued an advertisement for the services of four women as health visitors for the city—their duties to comprise visiting from house to house in the poorest parts of the city, calling attention to the necessity for cleanliness of the house and its surroundings, giving advice as to the rearing of children and the nursing of the sick, distributing and explaining handbills on the prevention, &c., of infectious diseases, and reporting daily to the medical officer of health. They will be required to reside in or near the respective districts in which they work. Their age is not to exceed 35 years and their salary is to be 25*s.* a week with uniform. This is an opening which admits of much good being done among the

poorer classes, but one which evidently will require much tact and discrimination in its pursuit. An intelligent knowledge of the duties to be performed and the power of explanation are not always to be readily found even among the educated classes. It is observable that in some of the advertisements the proposed visitors are called "women" and in some others "ladies"—a difficulty evidently presenting itself to the minds of those responsible for drawing up the notices.

The Inebriates Act.

The utility of the Act passed last session appears so far to be a dead letter. Cases are constantly occurring at the local police-courts which show that an institution for the reform of this vicious habit is strongly needed. The statute empowers magistrates to send habitual drunkards after a certain number of convictions to an inebriate reformatory where they may be kept for any period up to three years. At present the authorities have provided no places of the kind, nor has any step been taken by individual or combined enterprise for this salutary object. Careful and unprejudiced consideration would show the great advantage of these powers duly exercised. A vast gain to the community would result from the deprivation of the opportunities for recurring drunkenness with all the train of moral and social evils which surround the victims of repeated indulgence.

Health Lectures.

Under the auspices of the Athletic Institute a grand opportunity for advertising is offered. What more attractive headings could be placarded about the town than the following with the names and titles of the lecturers in full: "The Foot and its Covering"; "Sudden Illness—what to do"; "Some Points in the Structure and Care of our Eyes, Ears, and Teeth"; "On Elementary Nursing"? Truly it may be said, "Which of our learned with all his lore hath leisure to be wise?" Advice gratis is the next consideration and the value will be accordingly; in the meantime the public are to be educated to get good for nothing.

Feb. 21st.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Annual Meeting of the Manchester Royal Infirmary.

AT the annual meeting of the Manchester Royal Infirmary held on Feb. 10th one sentence in the report gave rise to some rather animated discussion. It was to the effect that the strain on the resources of the institution had "been less than in some preceding years and with but few exceptions applications for admission and accommodation of patients have been readily met." It is curious that the gentleman who seconded the adoption of the report seemed to prove conclusively that the statement was inaccurate and misleading. Dr. Leech moved that it should be omitted and said he could not help feeling that it "would never have appeared had a representative of the acting medical staff been present when the report was drawn up." It shows very prettily how untrustworthy figures are without explanations that will show their true bearings. In the book in which cases "deferred" for want of room are kept 1029 are entered for 1896, 250 for 1897, and only 57 in 1898, but the report did not state that this fall in the numbers arose from a change in the mode of classification and from the great use made of the Cheadle Convalescent Hospital as a sort of "relief train." In truth, the Cheadle Hospital is, from the strain on the infirmary, in danger of becoming more and more an "overflow" than a convalescent hospital, as patients are often sent there when it would be better to keep them longer in Piccadilly. Dr. Leech gave several instances where urgent cases had to be sent away for want of beds. Mr. Thomas Jones, professor of surgery, seconded the amendment and said that those who worked within the infirmary knew the great pressure to which the accommodation was subjected. Patients had to be sent to Cheadle where they had not the requisite nursing staff who ought to remain at the infirmary. Dr. Renaud said the board asked him to draw up the preface to the report and he was responsible for the statement which had received the sanction of his colleagues, referring of course to his lay and not his medical colleagues, for he is still one of the consulting physicians. Dr. Harris, in supporting the amendment, said that it was a notable thing that 14 of the active staff should agree that the paragraph objected to was misleading. The amendment was agreed to. The matter is chiefly of importance as showing how injuriously the present state of things is affecting the infirmary as an agency for the relief of human suffering. The negotiations with the corporation are hanging fire. One of the gentlemen present urged that they should be pushed on and that the board should say what they are willing to accept for the site and the corporation would then say whether or not they were prepared to pay it. If nothing is done the present deadlock will soon become a scandal.

Manchester and Salford Sanitary Association.

The annual meeting of the Manchester and Salford Sanitary Association was held on Feb. 13th and the work of the year reviewed. Having no executive power the association can only work by educating and influencing public opinion and—let it be said with all humility—by bringing similar influences in regard to public health to bear on the city council. It has to be acknowledged that hitherto it has been labour in vain so far as cottage baths are concerned. This question has for several years been brought before the Baths Committee. The city has many public baths on a large scale so palatial, however, as to be deterrent to poor women who would gladly wash themselves and their children in a cottage. It would cost little and do much good to provide available means of removing from many of the fellow citizens of the Baths Committee the reproach and offensiveness of personal filth. But the average city councillor loves to do some great thing. Miles Platting and Ancoats have long been distinguished as the special home of bad smells and in consequence of representations from these districts a joint deputation waited on the Sanitary Committee of the corporation and were told that efforts were being made to correct these nuisances which, besides being disgusting, are often distinctly injurious to health. The association did not approve of the action of the corporation in one case of complaints of bad smells from sewers "in sealing up six of the manholes and thus leaving nearly two-thirds of a mile of sewer highly charged with naphthalene, benzol, &c., without any ventilation whatever." Arising out of these nuisances from works dealing largely with gas by-products the question is being discussed of these being dealt with by the corporation itself, with the twofold object of profit to the ratepayers and a guarantee of having the work carried on in the least offensive way. Much interest has been taken in the question of lamp accidents and the investigations of Mr. William Thomson, F.C.S., carried on for about two years, resulted in a strong expression of opinion that the flashing-point of the oil should be raised. It would no doubt still be desirable to prevent the use of dangerous and ill-constructed lamps. It may fairly be said that the association has often been in advance of public opinion and in nothing perhaps is this more clearly shown than in the "campaign against phthisis" which has been carried on for many years, long indeed before it became popularised and fashionable. The corporations of Manchester and Salford have been urged to make provision "for the more effective treatment of consumptive patients in suitable premises." It is in contemplation to arrange for a general conference on the subject to which all local authorities in the district and representatives of boards of guardians, hospitals, &c., will be invited. The association is also giving its support to the efforts of the corporation to prevent the sale of milk containing the tubercle bacillus. The long-continued struggle with the smoke nuisance still goes on and in Manchester with some little success, but Salford continues a gross offender which is rather hard on Manchester as the prevailing winds bring the smoke across the narrow boundary of the Irwell, which, by the way, is still as black as the smoke which passes over it. An appeal for funds ought not to be necessary but it is so, though most of the work is done without fee or reward, if "the modest standing expenses" are to be met, for Manchester owes much to the association.

Prevention of Tuberculosis.

At a meeting of the North-Western Branch of the Incorporated Society of Medical Officers of Health held in Manchester on Feb. 10th, Professor Delépine read a paper on the Prevention of Tuberculosis which was followed by a discussion. He urged the "notification of the occurrence of tuberculosis—more especially of the

most infectious form, phthisis—in the same way as other contagious maladies were notified." He considered "the establishment of sanatoria for the treatment of consumptives was a wrong measure because it passed over the most important preliminary step by which the sources of infection should be discovered." This statement, as reported, has led to some misapprehension which possibly would have been avoided if notification had been spoken of as a necessary first step. There was an almost unanimous agreement as to notification, in favour of which Dr. Niven (Manchester) spoke strongly, followed by Dr. Howarth (Darwen), Dr. Wheatley (Blackburn), Mr. Vacher (Cheshire), Mr. Berry (Wigan), and Dr. Hayward (Haydock). A resolution in favour of notification as a necessary preliminary to further action was carried after further discussion, the chairman only, Mr. Pilkington of Preston, voting against it. He thought the expense would be prohibitive, that "the disease ran too long a course, and it would not be possible to shut up phthisical persons who needed to be out-of-doors." While admitting the desirability of all necessary precautions against the spread of tuberculosis by the disinfection of rooms and houses and by proper and scrupulous care on the part of the patients it must be acknowledged that here compulsory notification is by no means so simple as in the case of small-pox. The chairman illustrated the sort of difficulty that would be met with by saying that "notification suggested a state of things in which a man with tuberculosis would not be able to cough in public without first ringing a bell." But some of the more ardent spirits would object entirely to his appearance in public.

Feb. 22nd.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

The Death of Professor Rutherford.

THE death of Professor Rutherford, which occurred on Tuesday last, has cast a shadow over the University. At a meeting of the students a resolution has been passed expressing their sense of the deep loss sustained by them in the death of their distinguished teacher, and it was resolved to place a bust of Professor Rutherford in the physiology class-room.

Edinburgh University Court and the Lectureship on Tropical Diseases.

At the meeting of the Edinburgh University Court held on Feb. 13th the Court resolved to invite applications by advertisements for the office of lecturer on tropical diseases and remitted to a committee to consider and report as to the qualifications of the candidates, the first appointment to be for a period of three years which may be renewed. The following are the regulations pertaining to the lectureship: "1. The course of instruction shall extend over not less than 20 or more than 25 lectures and shall consist of lectures and demonstrations and other practical work, the number of meetings for each to be arranged by the Senatus. 2. The class fee for the course shall be £2 2*s*., with an entrance fee of 5*s*. in the case of non-matriculated students. 3. Two such courses shall be given in each year, one in the winter and the other in the summer session, should a course in each session be required. 4. Each course of instruction shall be open to (*a*) qualified medical practitioners; (*b*) students who have completed the curriculum for the final examination in medicine of any of the qualifying medical authorities; and (*c*) others especially interested in the subject. 5. Certificates of attendance will be granted as follows: (*a*) a class certificate to each member of the class who has performed the work of the class in a satisfactory manner; (*b*) a University certificate to be signed by the Dean of the Faculty of Medicine to each member of the class who has attended a course of instruction on practical bacteriology, including the micro-organisms of tropical diseases, who has also attended the course of instruction in tropical diseases, and who has performed the work of both of these classes in a satisfactory manner. This certificate shall be based on evidence received from the teachers on practical bacteriology and tropical diseases." Applicants are required to lodge 20 copies of their application and 20 copies of their testimonials with the secretary of the University Court not later than March 6th. One copy of the application should be signed. At the same meeting the court recognised as extra-academical teachers whose courses of instruction qualify for graduation in medicine in the University, the following lecturers: (1) Professor W. E. F. Thomson, Anderson's College Medical School, Glasgow (Physiology); and (2) John Macpherson, M.D. Edin, Larbert (Mental Diseases).

Edinburgh Town Council and the Milk-supply.

The Public Health Committee of the Edinburgh Town Council on Feb. 14th, on a motion by Baillie Pollard, resolved unanimously to recommend the magistrates and council that it should be especially stipulated in the contracts for the supply of milk to the various city departments: "That cows from which milk is taken for the contract supplies shall have withstood the tuberculin test applied by a qualified veterinary inspector approved by the Town Council."

Edinburgh Ear, Eye, and Throat Infirmary.

At the annual meeting of the Edinburgh Ear, Eye, and Throat Infirmary held on Feb. 15th the report announced the resignation of Dr. Kirk Duncanson, the senior medical officer. Dr. Duncanson's connexion with the infirmary dated from 1870 and from 1875 till 1883 he conducted the Ear Dispensary at his own expense. The report also stated that the total number of patients treated during the year was 2509, an increase of 194 over the number for the previous year.

Edinburgh Parish Council and Phthisical Patients.

The Edinburgh Parish Council, like the Town Council, is engaged in considering the question of arrangements in connexion with phthisical patients. While the Town Council has to concern itself more with prevention of consumption the Parish Council has to consider the question of accommodation, &c., for those who have fallen on its hands for relief when incapacitated by the disease. No less than 38·9 of the deaths from phthisis in Edinburgh take place among persons living in houses under £10 rental, so that a large number of those dependent on the parish are placed in that position directly or indirectly from the effects of this disease. The Council are considering the question of building separate wards for phthisical patients in connexion with one or other of the poor-houses. A site to the west of Craiglockhart poor-house is considered to be the most suitable one in the event of the Council deciding to erect such wards.

Royal Edinburgh Hospital for Sick Children.

The fortieth annual meeting of the contributors to the Sick Children's Hospital was held on Feb. 20th. The report showed an increase in both out-patients and in-patients, this being especially seen in the case of the out-patients, of whom 700 more new cases had been treated than in the previous year. The necessity for providing further accommodation in the out-patient department is still engaging the attention of the directors. A new surgical ward had been opened during the year. The report of the medical staff showed that about one-third of the in-patients were under two years of age and the staff were of opinion that on this account an increase in the nursing staff was justified. One-third of the total mortality was due to tuberculosis in one form or another. The chairman in moving the adoption of the report mentioned that the cost per child in the institution this year had been £4 17*s*. 1*d*., as against £5 0*s*. 4*d*. in the preceding year. They were not in that country, as in England, troubled with conscientious objectors, there having been an increase of about 50 per cent. in the number of vaccinations.

Memorial to Professor Coats.

A fortnight ago, as was announced in THE LANCET, a meeting was held at which it was resolved to raise a fund for a memorial to the late Professor Coats. A proposal was then adopted that it should take the form of a University prize or scholarship in connexion with pathology. To carry out this a sum of at least £1200 will be required. Circulars are being issued calling for subscriptions, but as many of Dr. Coats's friends and former pupils, who are widely scattered, may not be reached in this way, those who are managing the fund desire to intimate that contributions will be received and acknowledged by Dr. David Newman, honorary secretary, 18, Woodside-place, Glasgow, or Mr. James J. MacLehose, honorary treasurer, 61, St. Vincent-street, Glasgow.

University of Glasgow.

The open university lecture on Feb. 20th was delivered by Dr. John Glaister, Professor of Forensic Medicine, the subject being "Microbes." The lecture was largely attended

and was abundantly illustrated by lantern slides, culture preparations, and other specimens. In the course of his remarks Professor Glaister referred to the present day crusade against tuberculosis, and expressed the opinion that much good would result from it provided the effort was a continuous one and was linked with practical methods. Among the conditions to be demanded he included the extermination of tuberculous milch cows from herds the milk of which was used as food by man and especially by children; the education of the public to the fact that by the boiling or sterilisation of milk possibilities of harm from this source were much reduced; the compulsory inspection of meat; popular instruction on the essentially infective nature of tuberculosis and especially of the dangerous character of the expectoration of phthisical patients; and the efficient promotion of municipal and domestic sanitation.—The list of those on whom the Senatus proposes to confer honorary degrees at the April graduation has just been published. Amongst those who are to receive the degree of LL.D. is Mr. James Finlayson, M.D., Glasg., Lecturer on Clinical Medicine in the Glasgow Western Infirmary and Honorary Librarian to the Faculty of Physicians and Surgeons. Sir Henry Irving is to be honoured with the same distinction.

Medical Vacancies.

The position of visiting physician to the Glasgow Training Home for Nurses is vacant, Dr. T. K. Monro's term of office having expired.—The committee of the Royal Hospital for Sick Children have determined to appoint two additional extra physicians.

Memorial Window to Principal Caird.

At a meeting of the committee in charge of this memorial held in Glasgow on Feb. 13th it was decided that the window should be placed on the east side of the Bute Hall in Glasgow University directly opposite the McGrigor window. It was also decided that the design should consist of 12 figures arranged as follows: First row—Plato, Aristotle, Spinoza, Hegel; second row—Athanasius, Chrysostom, Augustine, Aquinas; third row (below the gallery)—symbolical figures representing Philosophia, Jurisprudentia, Medicina, Theologia. The total cost, including all expenses, will be fully £900. The subscriptions to date amounted to £833. Subscriptions of past students had been received from Newfoundland, Canada, South Africa, British East Africa, India, and the Argentine Republic. Those who still desire to contribute are requested to send their subscriptions as soon as possible to the honorary secretary, Mr. Archibald Craig, 156, St. Vincent-street, Glasgow.

University of Aberdeen.

The University Court has resolved to appoint a lecturer on tropical medicine, his remuneration to come from the fees. It is proposed that the course should consist of about 25 lectures as a preliminary for the curriculum in the London school.—Mr. Stout, Anderson lecturer on comparative psychology, will resign the lectureship at the close of the present session.—With reference to a memorial signed by 425 students requesting the Court to provide a gymnasium, the Court has expressed sympathy with the object and remitted the memorial to a committee with the view of taking the earliest opportunity of providing a gymnasium and to report.—In deference to the wishes of the University authorities the Secretary for Scotland has agreed to make no recommendation for a few weeks as to filling up the chair of Natural History vacant by the death of Professor H. A. Nicholson, the object of the delay being to allow opportunity for considering the possibility of separating the subjects of zoology and geology.

Public Health in Aberdeen.

Practically all the local authorities in Aberdeenshire and Kincardineshire and several in Banffshire and Nairnshire have agreed to join in the arrangement recently made between the Aberdeen Town Council and Professor Hamilton, Aberdeen University, for the conducting of bacteriological investigations in connexion with infectious diseases. On the suggestion of Professor Matthew Hay, M.D. Edin., city medical officer of health, the Aberdeen Town Council has remitted to its public health committee to report as to the town council taking the initiative for providing a sanatorium or hospital for the treatment of cases of phthisis. Professor Hay reports that the epidemic of measles in Aberdeen attained "leviathan" proportions in January of this year, when 1647 cases were reported or discovered, but although school attendance was greatly interfered with the mortality was exceptionally low, there being only 25 deaths. Typhoid fever is rapidly declining. Last week 628 cases in all of zymotic diseases were recorded.

Feb. 22nd.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Intermediate Education Commission.

Dr. Lombe Atthill and Sir William Thomson were examined before the Commissioners on Feb. 18th, the Lord Chief Baron filling the chair. Dr. Atthill said that he had been deputed on the part of the Royal College of Physicians of Ireland to ask that the examination of the standard required by the General Medical Council should be held not less than twice a year and if possible three times; moreover, that these examinations should be open to all candidates between the ages of 16 and 40 years. Sir William Thomson said the chief difficulty was in the fact that only one examination in the year was at present provided, though the General Medical Council accepted the junior certificate of the intermediate board as it stands.

Royal College of Surgeons in Ireland.

No less than 10 candidates for the primary grade of the Fellowship examination presented themselves on Feb. 20th.

The Open-air Treatment of Phthisis.

The public at Belfast are being educated as to the open-air treatment of phthisis in a very up-to-date manner, for on Feb. 20th a concert was given in Belfast (the Lord Mayor presiding) in aid of the expenses for the provision of shelters, &c., at the Forster Green Consumption Hospital, and the entertainment was varied by a series of limelight views of the open-air treatment at Nordrach, Falkenstein, Davos, Cromer, Bournemouth, and Belfast. A layman gave a description of the pictures and of the methods employed. There are at present 36 patients in the Fortbreda Consumption Hospital. They have there arranged to construct a verandah and the authorities of that institution are appealing to the public of Belfast to supply the necessary funds for shelters, each of which, it is estimated, will cost about £36.

Changes in Dundalk Poor-law Union.

The Local Government Board have sent down a sealed order in which, in opposition to the repeated expression of opinion of the board of guardians and the Dispensary Committee, the Louth Dispensary District is wiped out and its area divided between the adjacent districts of Dromiskin and Barronstown. The new Dromiskin District is about 10 miles from end to end and the people feel that the poor cannot be attended nearly so well as under the old dispensary system.

The Royal Medical Benevolent Fund.

Dr. Richard Purdon, the honorary secretary and treasurer of the Belfast and District Branch of the above fund, has sent out to all members of the profession an urgent appeal by order of the local committee urging the claims of the society. It is a pity that last year there were 118 members of the medical profession in Belfast and 113 in the country who have never subscribed anything to this, the only charity in connexion with the medical profession in Ireland, while, on the other hand, the central committee of the society gave last year £90 to the widows and orphans of deceased medical men. It is a fact, however much one may deplore it, that this society has never exactly "caught on" in Belfast and some members of the profession in Ulster think that if the society was a purely local one and freed from all centralisation in Dublin it might be more popular. The whole tendency of the day is towards decentralisation and this has its influence on medical matters as well as in affairs of State.

Gas Poisoning.

In a memoranda handed in by the Belfast coroner at a meeting of the Finance Committee of the corporation an important report appears from Dr. J. Lorrain Smith on the recent cases of gas-poisoning in Belfast. In this Dr. Smith says that the cases bring out conclusively for the first time on record the extreme importance of the secondary effects of gas-poisoning. The analysis shows that the amount of gas in the blood of one of the cases (a child) when death occurred was negligible and that death was due entirely to the effects on the heart and nervous system. These analyses

will be published in full by Dr. Smith in the medical journals to direct the attention of medical men who may be called to treat such cases to this aspect of gas-poisoning. The blood of another case (a woman, aged 70 years) showed the pink tint of carbon monoxide hæmoglobin. On analysis by the carmine method it was found to be 57 per cent. saturated. The blood of one child, aged four years, was very slightly tinted and was not more than 5 per cent. saturated. Since the child was exposed to the same atmosphere as the adult it is clear that her blood was, at one time at least, as highly saturated as 57 per cent. The artificial respiration which was applied by the medical attendant sufficed to clear the carbon monoxide out of the blood. The child therefore died from what may be called secondary effects of gas-poisoning on the heart and nervous system in spite of the treatment by stimulants applied by the medical man. These researches of Dr. Lorrain Smith when fully published will be of the utmost importance both as to the effects and the best methods of treatment of gas-poisoning which since the introduction of the new "water gas" process is becoming so frequent.

The late Dr. W. C. Townsend.

At a general meeting of the medical profession of the city of Cork, held in the rooms of the Medical and Surgical Association, 118, Patrick-street, on Feb. 18th, it was proposed and carried unanimously:—

That we beg to record our sorrow at the decease of Dr. William C. Townsend who filled a conspicuous, honourable, and successful position in our profession for over 50 years, and that we express our deep sympathy with all the members of his family in their sad bereavement.

Feb. 22nd.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Death of M. Félix Faure.

THE newspapers have of course been full of articles dealing with the death of the late President. One portion of the public which always considers that there must be something out of the common about the death of those in high places will not allow that the death was a natural one. They call to mind the fact that the President was not at the Elysée all the afternoon of his last day and that when he came back at six o'clock in the evening he complained of being in great pain. Others consider it remarkable that after the apoplectic stroke had taken place the President should have been quite clear both in his mind and his speech so that he conversed with those around him for at least half an hour before the end came. It is considered a very serious point that the embalming took place with extreme hurry—i.e., within 12 hours after death—so that any examination from a toxicological point of view was made impossible, supposing such had been called for by public opinion. The embalming, too, was carried out not by a professional embalmer, but by a medical friend who was also a relative of the President's son-in-law. To put an end to all these rumours a formal statement has been issued bearing the signatures of all the medical men who were present during the last moments of the President. These were Professor Potain, Professor Lannelongue, Dr. Bergeron of the Academy of Medicine, Dr. Cheurlot, and Dr. Humbert. In this statement the medical men certify that they were present from the very beginning of those symptoms which in the space of a few hours brought about a fatal termination. They also certify that they all recognised all the symptoms of a rapidly fatal cerebral hæmorrhage accompanied by facial paralysis and left hemiplegia.

A New Method of Purifying Air.

Your readers are already in possession of some of the facts relative to this matter dealing with the researches of M. Laborde and M. Jaubert.[1] At the meeting of the Academy of Sciences held on Feb. 6th, M. Degrez and M. Balthazard read a paper on the use of sodium peroxide in the purification of air. This substance in the presence of water decomposes into sodium hydrate, oxygen, and peroxide of hydrogen. Accordingly M. Degrez and M. Balthazard conceived the idea of utilising for purposes of respiration not only the oxygen, but also the alkali which is produced together with the oxygen. If an animal is supplied with oxygen by means of sodium peroxide the decomposition of this substance produces more alkali than the equivalent necessary to absorb all the carbon dioxide elaborated. If a guinea-pig be placed under a bell-jar made air-tight and supplied with oxygen by means of sodium peroxide it will be found to be perfectly well at the end of four hours, while a control guinea-pig placed in a bell-jar similarly sealed but without the sodium dioxide will die asphyxiated at the end of two hours. The amount of watery vapour in the air expired by the animal is quite enough to bring about the reaction. The sodium peroxide is only attacked very superficially under such conditions and the survival of animals in this test is to be explained rather by the absorption of the carbon dioxide than by a sufficient supply of oxygen.

[1] THE LANCET, Feb. 4th, p. 341.

The Deceptive Remissions of Appendicitis.

At the discussion recently held on the subject of appendicitis at the Academy of Medicine M. Dieulafoy read a paper of which the following conclusions are the pith. 1. The acute symptoms of appendicitis—the abdominal pain, the vomiting and the pyrexia—are sometimes followed by a marked remission, the pain disappearing, the temperature falling, and the patient feeling much better. 2. This remission and defervescence are not always significant of a real improvement in the condition; sometimes they mark a false remission, a deceitful and treacherous calm. 3. It is important to note that this deceptive calm often coincides with the occurrence of very grave lesions, such as gangrene of the appendix, septic infection of the peritoneum, and diffuse peritonitis. 4. The remissions are never complete, for if the case be closely observed it will be seen that the course of events differs from a real improvement by the persistence of some of the symptoms. Thus the abdomen remains tympanitic, the muscular rigidity continues, and the quick pulse-rate persists although the temperature falls. Urobilinuria and albuminuria are by no means uncommon. 5. Such deceptive remissions are sometimes brought about by drugs, especially by the use of morphia or the application of ice bags which mask the onset of danger signal symptoms. 6. This deceptive remission supervenes at various times from as early as the second day to as late as the fourth or sixth days. 7. Such remissions, coinciding as they do with the onset of the gravest peritoneal lesions, show once more the inaccuracy of drawing a sharply defined line between the condition of appendicitis and that of peritonitis. Such views give rise to the most serious errors, for the symptoms of appendicitis and peritonitis are very similar—are, in fact, so interwoven and bound up together that it is impossible to say at what particular moment peritonitis commences. 8. These deceptive remissions are the most potent cause of death from appendicitis. A temporising physician or surgeon seizes upon one of these intervals of calm as a reason for putting off surgical interference; soon, however, some terrible complication supervenes against which surgery is powerless and the patient dies. 9. It is of the first importance to distrust these treacherous calms, to remember their existence, and to operate without delay if it is desired to save the patient from death.

Feb. 21st.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

The Relations between the Stomach and Drugs.

AN interesting study of the relations between the stomach and chemical compounds has been published in the *Münchener Medicinische Wochenschrift*. The stomach, it is pointed out, is liable to be injured by certain drugs whilst other chemical substances are altered by the gastric juice. The absorbing power of the stomach being very limited compared with that of the intestines it is desirable to make a drug pass as quickly as possible from the stomach into the intestines if it is to be absorbed within a short time. Pure water leaves the stomach more quickly than other substances; 500 grammes (17½ fluid ounces) of water leave the stomach within half an hour and 200 grammes within 15 minutes. The gastric juice is not increased by it. Other fluids, such as acid solutions, soup, milk, beer, and especially oil, remain much longer in the stomach and make the gastric juice increase. Water taken after or together with solid food leaves the stomach more slowly than when

taken on an empty stomach. If these facts are applied to the administration of drugs it will be found that they leave the stomach in the following order: first when given on an empty stomach with water; then with soup, milk, or oil; then with water after meals; and, finally, without any fluid after meals. These facts were verified by experiments performed with salicylate of soda, iodide of potassium, and charcoal powder. Therefore if a quick absorption and a strong action of a remedy are desired it must be given with water on an empty stomach. A narcotic, antipyretic, or antineuralgic remedy given in this way will act more powerfully than when taken after meals. It has for a long time been known empirically that a given quantity of either beer or wine is more intoxicating when taken on an empty stomach than when taken after food. Another important question is that of the precautions which have to be taken in order that the stomach may not be injured by the administration of drugs. Some medicines, for instance, may be given by the rectum. Certain drugs which are insoluble in the gastric juice are dissolved in the intestines by the pancreatic fluid. This is the case with salol, tannalbin, dermatol, &c. Professor Unna has suggested the giving of drugs in the form of pills coated with a substance soluble in the intestines only; substances of this kind are keratin and the glutoid capsules invented by Professor Sahli. Mucilaginous substances, such as salep, water-gruel, &c., are empirically known to be very bland for the stomach; it is therefore advisable to use them as vehicles for the administration of irritating medicaments. The best way, however, to spare the stomach is to cause the drugs to pass as quickly as possible into the intestines as explained above. All these statements apply only to a stomach the motor function of which is normal; in gastric atony or in pyloric stenosis no medicines must be given by the stomach, but only by the rectum or subcutaneously. As alcohol has been found to increase absorption by the stomach alcoholic solutions may be useful where the rectal or subcutaneous methods are not available.

Argil as a Dressing for Wounds.

Argil is an earthy or clayey product which was largely used in ancient surgery and has again been recommended for the dressing of wounds. Dr. Stumpf of Werneck states in the *Münchener Medicinische Wochenschrift* that it has a strong deodorising and desiccating action and is therefore valuable for the dressing of ulcers with copious fœtid discharge. It has also been found to answer very well as a dressing for recent wounds, for under it they healed without any reaction. Dead bodies could be preserved by putting them in argil dried by heat. The above statements have been verified by Dr. Langemak of the Kaiserswerth Hospital, who points out that argil has several advantages compared with other powders used for dressing. It is very cheap, the price being 10 pfennigs for 500 grammes or about 1½*d.* a pound; it is harmless, so that it may be used in unlimited quantity; and it is not irritating. Its deodorising power is very remarkable and its desiccating action is so strong that crusts are sometimes formed which retard the process of healing. In this case the application of argil ointment is advisable. In eczema a paste composed of argil, glycerine, and vaseline has proved useful.

Chancre on the Sole of the Foot.

At a recent meeting of the Berlin Medical Society Professor Lesser showed a woman, 28 years of age, suffering from a primary chancre on the sole of the foot. In October she was troubled with itching of the sole so that she could not refrain from scratching it. In November a small ulcer made its appearance and in December two large holes formed. On Jan. 4th symptoms of general syphilis were recognised and she was accordingly admitted into the Charité Hospital under the care of Professor Lesser. At that time there was recent roseola over the whole body, together with a papular eruption of the vulva and the anus, and general glandular enlargement especially of the right femoral and inguinal glands. The ulceration of the sole, extending to the fourth and fifth toes, was so deep that the tendons were visible. There was a reddish watery discharge accompanied by only a small amount of suppuration. Another ulcer of somewhat smaller size was found on the plantar side of the great toes. As the roseolar eruption was not preceded by any other ulceration there is little doubt but that this had been a primary chancre. The mode of infection could not be ascertained. The patient being a laundress had sometimes to work among the linen of sick persons. She may perhaps have got some particles of syphilitic virus from the linen on her finger-nails and by scratching may have conveyed the virus to the sole of the foot. Only four cases of primary chancre of the sole of the foot have hitherto been recorded in medical literature.

Feb. 20th.

ROME.

(FROM OUR OWN CORRESPONDENT.)

The Misericordia.

WHEN the "Romance of Outdoor Relief" comes to be written it will owe some of its most touching, most picturesque, chapters to the Misericordia—a brotherhood peculiar to Tuscany, seen at its best in Florence, though also admirably *en évidence* at Siena, Pisa, Leghorn, and Lucca, and not unworthily represented in the minor provincial towns, inland or maritime. Ecclesiastical in origin, it was founded in 1244 by Pietro di Luca Borsi and its *personnel* is drawn from every social rank, all and individually bound to serve whenever summoned, without fee or reward. The Grand Duke himself, when presiding at a State banquet in the Pitti Palace, has had to rise and leave his guests when his turn came and to bear a hand with tradesmen, nobles, mechanics, professional men—with the company, in fact, promiscuously improvised to transport to hospital some victim of an accident or to carry a patient from the sick bed to the suburban lodging indicated by the physician. The service is not one of "unskilled labour." The members of the brotherhood have all been previously trained to lift the sufferer from the street, to turn the patient in bed, and put him on the "bara" or stretcher with the minimum of pain or of risk to compromised limbs or organs, and thereafter to bear him through the thoroughfares to his destination with the least possible vibration, friction, or disturbance. As often happens, the particular company told off on sudden duty is composed of men as various in altitude as they are in social position, so that in carrying the "bara" shoulder high they employ for the first part of the journey those of them who are as nearly as possible of the same height, and when these are tired they lower their burden to the less tall without interruption of movement or alteration of pace and so continue the shifting process till the sufferer is at his journey's end and laid down in bed with scarcely the consciousness of having been transported at all. Few sights or sounds are more impressive in the Florence of to-day than the "measured march" of the Misericordia through its crowded streets, as robed in black gowns and hooded in black cowls with openings for the eyes the brotherhood wends its way with its burden, the bystander lifting his hat sympathetically, the traffic reverently falling aside, and the street noises subdued to a momentary hush in presence of

"The still, sad music of humanity."

Queen Victoria, it is well known, took profound interest in the Misericordia during her successive sojourns in Florence, and one of its highest office-bearers, the late Cavaliere Cesare Barsi, was deputed by the Arci-Confraternità to visit the Villa Palmieri, there to set forth to Her Majesty its origin and constitution, the nature of its service, the resources at its command, and the more striking incidents in its experience. As I have said, the brotherhood is peculiar to Tuscany, though other cities have their equivalents, each in its own way rendering similar service; few if any of them, however, being able to point to the same antiquity of origin, to the same large resources, or to the same admirable discipline and organisation. I have been led to give this brief notice of the Misericordia from the funeral obsequies just celebrated in Florence of the Provveditore (or general provider and administrator) of the Brotherhood, Signor Giuseppe Bronzuoli—a singularly imposing and picturesque pageant composed of 300 members of the Arci-Confraternità, 50 "capi di guardia" (chiefs of the guard) and 35 priests. The procession included many citizens among whom were not a few surgeons and physicians, those of them who immediately followed the hearse bearing lighted torches.

"How Study is Rewarded in Italy."

Under this title ("Come si premia lo studio in Italia") the organ of the ex-Premier, the Marchese di Rudinì, comments

bitterly on the "struggle for existence" maintained by science in general and medicine in particular in the Italian kingdom. Learned bodies and associations are not lacking, but (says the journal referred to, the *Opinione*) they are either closed to the young investigator or are miserably short of funds. When an able and accomplished nature-student has in the course of prolonged research alighted on some pregnant fact or struck out a promising line of discovery he gets no help from these institutions and is reduced to this dilemma—either to pay out of his own purse for the publication of his "findings" or if he is poor to let them lie dormant and (as often as not) see another get the start of him in giving them to the world. The *Opinione* proceeds to adduce a concrete instance. A young Italian nature-student four years ago completed an original series of investigations unique in value scientifically and practically. Not being rich enough to provide the illustrated plates which had to accompany his exposition he had to suspend publication entirely, a request for aid addressed to the Department of Public Instruction being met with the stereotyped "non possumus." All he could do to obviate being anticipated by contemporaries was to send to a periodical a "cenno sommario," as the *Opinione* calls it, of what he had discovered. This "cenno," continues the Roman journal, "fell under the eyes of a distinguished British anatomist who urged the author, unknown to him as he was, to publish his investigations *in extenso*. The author frankly communicated his story to the British anatomist, who immediately sent him a handsome donation of money, and when the work was in this way put into proper shape submitted it to the Royal Society of London which shortly published it. Thus," adds the *Opinione*, "the researches of the young Italian nature-student have at length seen the light in Italy, written in Italian, and illustrated by magnificent plates, only through the private subsidy of a learned Briton and through the intervention of a foreign society! In what country except Italy, it asks, does such an incident occur? Germany fits out scientific commissions and sends them all the world over to study malaria. We," adds the *Opinione* sardonically, "religiously preserve malaria and pellagra for our posterity to suffer from and for our foreign neighbours to study." Our contemporary's theme has, indeed, been often handled in these columns and we can well understand the mortification with which Italians apply to themselves the bitter saying of their great satirist, that among the stings of poverty there is none more galling than that it makes its victim ridiculous in the eyes of the world:

"Nil habet infelix paupertas durius in se,
Quam quod ridiculos homines facit."

Feb. 18th.

Medical News.

SOCIETY OF APOTHECARIES OF LONDON.—In February the following candidates passed in the subjects indicated:—

Surgery.—A. E. Malaher, St. Thomas's Hospital; R. R. Mowll (Section II.), King's College Hospital; C. A. C. Salmon, Guy's Hospital; E. C. Thomas, London Hospital; and R. Le G. Worsley (Section I.), St. George's Hospital and Durham University.

Medicine.—P. A. Chillcott, London Hospital; C. J. Coleman, Cambridge University and Birmingham; F. Dengler (Sections I. and II.), Munich; J. Gallagher, Bombay; E. MacD. Judge, Guy's Hospital; L. Lehmann, Strassburg and Leipsic; R. R. Mowll (Section II.), King's College Hospital; B. J. Nolan, Dublin; E. C. Thomas, London Hospital; and D. O. Williams, Leeds.

Forensic Medicine.—P. A. Chillcott, London Hospital; C. J. Coleman, Cambridge University and Birmingham; H. Cooper, Aberdeen; F. Dengler, Munich; J. Gallagher, Bombay; E. S. Johnson, St. Mary's Hospital; E. MacD. Judge, Guy's Hospital; L. Lehmann, Strassburg and Leipsic; P. Power, Cork and Edinburgh; S. A. Rowley, Bristol; E. C. Thomas, London Hospital; and D. O. Williams, Leeds.

Midwifery.—H. Clough, Leeds; H. Cooper, Aberdeen; F. Dengler, Munich; J. Gallagher, Bombay; E. S. Johnson, St. Mary's Hospital; V. S. Partridge, Charing Cross Hospital; J. W. Robertson, Kingston, Ontario; S. A. Rowley, Bristol; E. C. Scarlett, Royal Free Hospital; A. E. Shaw, Cambridge University and St. Thomas's Hospital; A. Y. St. Leger, Cambridge University and St. Mary's Hospital; E. C. Thomas, London Hospital; J. M. Twentyman, Cambridge University and King's College Hospital; D. O. Williams, Leeds; T. R. Wilshaw, Birmingham; and E. D. Wortley, St. Bartholomew's Hospital.

The diploma of the Society was granted to the following candidates, entitling them to practise Medicine, Surgery, and Midwifery:—Messrs. H. Clough, E. MacD. Judge, R. R. Mowll, A. E. Shaw, and E. C. Thomas.

FOREIGN UNIVERSITY INTELLIGENCE.—*Breslau:* Dr. Walther Kuemmel has been appointed Extraordinary Professor of Laryngology and Otology. *Cracow:* Dr. Odo Bujwid has been promoted to the chair of Bacteriology. *Gratz:* Dr. W. Prausnitz has been promoted to the chair of Hygiene. *Liége:* The new bacteriological institute has been publicly opened. *Naples:* Dr. G. Jacontini has been recognised as *privat-docent* of Medical Pathology. *Pavia:* Dr. Silva has been appointed to the chair of Medical Pathology; Dr. Rocci of Turin has been recognised as *privat-docent* of the same subject. *Prague (Bohemian University):* Dr. Gustav Kunkel has been promoted to the chair of Hygiene.

UNIVERSITY OF BRUSSELS.—At the February examination the following practitioners were successful and obtained the M.D. degree:—John Q. Bown, Ashford; Charles Franks, Newark; W. J. Jenner, London; M. J. Morgan, Aberystwyth; Goone Tillike, Ceylon. There were 12 candidates, seven of whom failed.

DEATH-RATE OF DEVONPORT, PLYMOUTH, AND STONEHOUSE.—The death-rate in the above three towns during 1898 was at the rate of 17·4, 19·6, and 23·1 per 1000 respectively, the birth-rate being 30·4, 29·7, and 30·0 per 1000. The zymotic death-rate was 1·6 per 1000 in Devonport, 2·14 per 1000 in Plymouth, and 3·3 per 1000 in Stonehouse.

HOMŒOPATHIC VACCINATION.—In the course of his annual report Mr. Leah, the medical officer of health of Stonehouse, draws attention to the danger of inefficient vaccination which evades the law and gives no protection to the children. Mr. Leah adds that instead of making four scarifications the practice of the Homœopathic Hospital is to make only one puncture.

ROYAL EAR HOSPITAL.—A successful chamber concert was held at the King's Hall, Holborn, on Feb. 16th in aid of the new building fund of this hospital, the site of which has already been purchased. The hall was well filled and the following artistes volunteered and gave their services: Signor Carlo Ducci, Mr. C. Hayden-Coffin, Mr. Frank Bartlett, Mr. Hulbert Fulkerson, Madame Clara Dowle, Miss Mary Pearson, Miss Florence Lancaster, Miss Marie Bellas, Miss Beatrice Willey, and the Liedertafel quartette.

OPPOSITION TO THE VACCINATION ACT, 1898.—At the meeting of the St. Thomas's (Exeter) Board of Guardians held on Feb. 17th it was reported that Lord Poltimore had written stating that he had presented to the House of Lords the petition of the board in favour of the repeal of the Vaccination Act and his lordship added that he quite agreed with the guardians. Sir Stafford Northcote stated that he had presented a similar petition to the House of Commons and Mr. Seale-Hayne, M.P., wrote saying that he did not support the Vaccination Act of 1898, but until something had happened to give severe proof of its ill-effects it was premature to hope for further legislation on the subject in which sentiment appeared to be a more potent factor than reason.

BRITISH MEDICAL TEMPERANCE ASSOCIATION.—A meeting of this association was held on Feb. 17th, at the Conjoint Examination Hall, Victoria-embankment, when Captain P. W. O'Gorman, D.P.H., Indian Medical Service, read a paper on the Scientific Valuation of Alcohol in Health. Dr. Morton presided in the absence of the President, Professor Sims Woodhead, through illness. The conclusions of the lecturer were that alcohol did not act as a food, that it did not retard waste but was a protoplasmic or tissue poison, that it did not impart energy but was essentially a nerve paralyser, that it was dangerous both in hot and cold climates, and that it did not conduce to longevity. He pointed out that it reduced vascular tension and that Dr. Martin had shown that the strength of the heart contraction was diminished by alcohol. Dr. Ridge, in moving a vote of thanks to the lecturer, said that he hoped the paper would be published as he had found many medical men entirely ignorant of the immense number of facts which had accumulated proving the harm done by alcohol even in moderate doses and the advantages of total abstinence; these things were not taught in the usual way, but there was some hope for the future as there were between 300 and 400 medical students who were abstainers and belonged to the association. The vote was seconded by Dr. Claude Taylor and carried unanimously.

ROYAL COLLEGE OF SURGEONS IN IRELAND.—DENTAL EXAMINATION.—The following gentlemen, having passed the necessary examination, have been admitted Licentiates in Dental Surgery of the College: Mr. A. T. Green (Belper, Derbyshire) and Mr. D. Saville (Leeds).

ACCIDENT TO A MEDICAL MAN.—On Feb. 14th Mr. R. Griffith, L.R.C.P., L.R.C.S. Edin., of Glyn-Neath, Glamorganshire, was thrown from his horse and received a severe wound of the head with concussion of the brain.

MEDICAL MAGISTRATE.—Mr. J. R. Hughes, M.D. Edin., M.R.C.S. Eng., of Denbigh, coroner for West Denbighshire, has been appointed a magistrate for the borough of Denbigh.

THE RIGHTS OF MEDICAL MEN.—The Gosport magistrates have dismissed a police summons against a medical man who rode a bicycle on the footpath on the ground that a practitioner called to an urgent case has a legal right to take the shortest way.

THE Aylesbury Dairy Company have issued a circular entitled "Milk in Relation to Tuberculosis and other Diseases," which is designed to remove any anxiety in this connexion which may be present in the minds of their customers. The circular states briefly the precautions by medical inspection and regular analysis taken to ensure that only pure milk, free from all germs of disease and from adulteration, is supplied.

UNIVERSITY OF CAMBRIDGE.—At the congregation held on Feb. 16th the plans for the erection of the Sedgwick Memorial Museum, towards which £27,000 have been subscribed, were approved by the Senate. Mr. A. W. Hill of King's College has been appointed Demonstrator of Botany for five years. The degrees of M.B. and B.C. have been conferred on Mr. C. Powell, B.A., of Emmanuel College.

BOARDS OF GUARDIANS AND VACCINATION.—The Wellingborough Board of Guardians have failed to appoint a vaccination officer for the Higham Ferrers District and the Local Government Board has intimated that if this action is persisted in it will apply for a *mandamus*. The Board of Guardians, by a majority of six votes, determined to adhere to the resolution on the books. All the lady guardians voted for this course. All the clergy present except one voted against it.

THE CANCER HOSPITAL, BROMPTON.—The annual meeting of the governors of this charity was held in the board-room of the hospital recently, Sir George S. Measom presiding. From the report of the committee it appeared that during the past year 2477 new patients were received, 835 being in- and 1642 out-patients, whilst the total number of attendances of out-patients was 13,803. Much regret was expressed at the untimely deaths of Mr. W. H. Hughes, secretary, and Mr. Edward Cotterell, an able and valued surgeon of the hospital for the past six years. The committee in their report regret that there has been a considerable falling off in donations and annual subscriptions during the past year. Mr. Frod W. Howell, of the York County Hospital, has been elected to the office of secretary, and Mr. C. Jarman has been appointed as assistant secretary of the hospital in appreciation of his services for 26 years. The meeting terminated with the usual votes of thanks.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The Conscientious Objector.

ON Friday, Feb. 17th, Mr. BOULNOIS introduced into the House of Commons a Bill to repeal Section 2 (the conscientious objector section) of the Vaccination Act of last year. The hon. Member has put down the Bill for second reading on Wednesday, March 1st, when, however, there is little chance of it being reached having regard to the number and character of the measures in front of it.

Seats for Shop Assistants.

MR. SOUTTAR has introduced into the House of Commons a Bill to provide for seats being supplied for the use of shop assistants in Scotland.

The Law of Murder.

MR. W. AMBROSE has introduced into the House of Commons a Bill to amend the law of murder with reference to the doctrine of constructive or implied malice.

HOUSE OF COMMONS.

THURSDAY, FEB. 16TH.

The London Water Commission.

Mr. BALFOUR, in reply to Mr. James Stuart, said he was informed by the Chairman that the Royal Commissioners on the London Water question were at present unable to fix any date for the presentation of their second report, but there would be as little delay as possible after the taking of evidence was concluded.

Immoral Advertisements.

Mr. JOHN ELLIS asked the Home Secretary whether his attention had been directed to the case of three men of the name of Chrimes who were on Dec. 20th, 1898, sentenced to seven and 12 years' penal servitude for a widespread conspiracy to charge persons with having committed crimes with intent to extort money; whether the following rider of the jury had come under his notice: "The jury feel that such a vile plot, even with all the ingenuity displayed in it, could only have been possible by the acceptance of such immoral advertisements by a section of the press, religious and secular, well knowing their nature. They further expressed their earnest conviction that means should be taken to suppress such advertisements and the institutions from which they emanate, as they consider them direct incentives to ignorant and evil-minded women to commit crime;" and whether he saw his way to take any steps in the direction indicated.—Sir MATTHEW WHITE RIDLEY said: My attention has been called to this case and to the rider of the jury. In my opinion the question of dealing with indecent advertisements, either by amending the Indecent Advertisements Act or otherwise, is one deserving of serious consideration and I am giving my best attention to the subject.

Vaccination in the Civil Service.

Mr. BARTLEY asked the Secretary to the Treasury whether vaccination was required of all civil servants, including those young persons and others who are temporarily employed in the Post Office and other departments.—Mr. HANBURY said: All candidates for admission to the permanent Civil Service and all established workmen in the civil departments must show that they have been satisfactorily vaccinated, otherwise revaccination is required. Customs boatmen must have been vaccinated within seven years. In the case of persons temporarily employed each department is at liberty to fix its own requirements. In the Post Office service evidence of both primary and secondary vaccination is required before employment, whether permanent or temporary, and revaccination must have taken place within the preceding seven years. The only exceptions are: (1) soldier candidates, in whose case vaccination is presumed; (2) sub-postmasters; and (3) persons casually employed for short periods.—Mr. JAMES LOWTHER: Are conscientious objections entertained?—Mr. HANBURY: I think not.

Hospital Provision for the Khartoum Expedition.

Captain NORTON asked the Under Secretary of State for War whether he could state if an application was made by the army medical authorities for a hospital ship in connexion with the Khartoum Expedition in sufficient time for it to have reached Alexandria before the arrival of the sick from the front.—Mr. WYNDHAM said that an application for a hospital ship was made by the principal medical officer in Egypt to the general officer commanding the army of occupation on June 27th. Both these officers were at that time in London. The general officer commanding sent forward the application unofficially, adding that if on arrival in Egypt he found it necessary he would again apply through Lord Cromer. Pending the receipt of such an official application the general officer commanding was given full powers to take up passages for the sick and wounded, together with their medical attendants, nurses, &c., on board the P. and O. and other passenger ships passing almost daily through the Suez Canal, supplementing in this manner the accommodation afforded by the two Government transports allotted to this service. On Sept. 14th the general officer commanding applied officially by telegraph for a hospital ship, but since it would have taken five weeks to fit out and transfer such a ship to Alexandria it was decided to adhere to the arrangements already made. 465 invalids were conveyed by six vessels between Sept. 20th and Oct. 30th and all arrived in England considerably sooner than would have been the case had a hospital ship been despatched.—Captain NORTON asked whether, in consequence, 60 or 70 officers and men were down in hospital at Alexandria with only two nurses to attend to them?—Mr. WYNDHAM: No complaint to that effect has reached us. But if what is alleged occurred it was not due to the non-employment of a special hospital ship. It may have been due to the accommodation at Cairo and Alexandria not being sufficient for an outbreak of enteric fever which took place during the end of the campaign.—Captain NORTON asked if the hon. gentleman would inquire why the wounded coming down from the front were not properly provided for.—No answer was given to this question.

Venereal Disease in the Army in India.

Major RASCH asked the Secretary of State for India whether he was aware that out of an actual strength of 16,600 British troops proceeding on service in the recent campaign on the North-west frontier 1500, or nearly 10 per cent., were incapacitated for service in the field by venereal disease, and whether the Government of India proposed to take any further steps to remedy this condition of affairs.—Lord GEORGE HAMILTON replied that the force from which the 16,600 British troops were drawn for service in the recent campaign consisted of 21,439 men. Of these 989 were rejected as unfit for service on account of venereal disease, while a further number of 492 were incapacitated during the campaign for the same reason. The total number of men known to have been thus disqualified for active service was therefore 1481, or nearly 7 per cent., on a total strength of 21,439. The Government of India were fully aware of the importance of this matter and had taken, and were taking, steps with the object of diminishing the prevalence of venereal disease among the British troops in that country.

Vaccination in the Peabody Buildings.

Mr. LOUGH asked the Home Secretary whether his attention had been drawn to the fact that large numbers of the tenants in the buildings of the Peabody Trust in London had received notice to quit unless their children were vaccinated; and whether he would use his influence with the trustees to secure from them the same respect for the conscientious convictions of their tenants as was generally extended by the proposals in the Government Bill of last year.—Sir MATTHEW WHITE RIDLEY replied: I was not aware of the incidents to which the hon. Member alludes but I think that it is a case in which it would be clearly improper for me to interfere.

Condition of the Underground Railways in London.

Mr. R. G. WEBSTER asked the President of the Board of Trade whether his attention had been called to the discomfort travellers on those metropolitan underground railways worked by steam power had to suffer owing to the prevalence of noxious gases and sulphurous coal smoke; and if the companies could be compelled, by legislation or otherwise, to mitigate this nuisance to the travelling public.—Mr. RITCHIE replied: In 1897 I appointed a committee to inquire into the system of ventilation of the tunnels of the Metropolitan Railway and the report of the committee and minutes of evidence were presented to this House in the same year. As recently as December last the managing director of the Metropolitan Railway informed the Board of Trade that the directors of that company, conjointly with the District Company, had secured the services of Sir J. Wolfe Barry and Mr. W. H. Preece, and instructed them to provide the necessary electric plant and appliances for the equipment of a section of the line for experimental working. I hope that these experiments may result in the adoption of some system of electric traction.

The Small-pox Epidemic in Middlesbrough.

Mr. CHAPLIN, in reply to Mr. Pickersgill, said that no inquiry in the ordinary sense of the term was made by the Local Government Board into the outbreak of small-pox in Middlesbrough in November, 1897—June, 1898, but when the disease began to spread a medical inspector was sent there by the Board to advise as to the best means of controlling the disease and of preventing its spread within the borough and to the neighbouring districts. No formal report was made to the Board, though they were furnished from time to time with memoranda as to the progress of the disease and the means of prevention that were being adopted. Under these circumstances the Board did not propose to issue any report on the outbreak, but he might mention that the Middlesbrough medical officer of health in July last issued a special report on vaccination and its relation to the recent epidemic of small-pox.

FRIDAY, FEB. 17TH.

Foreign Milk.

Mr. WARNER asked the President of the Local Government Board if the Local Government Board could do anything to impose the same sanitary restrictions on foreign milk as are applied to British milk.—Mr. CHAPLIN replied: Foreign milk, as soon as it is imported, is subject to the same treatment as English milk. But the regulations which apply to dairies and cowsheds in this country generally and to the protection of milk therein cannot, of course, apply to dairies or cowsheds abroad. The matter, however, is of comparatively small importance, for while the consumption of milk is estimated at 600,000,000 gallons a year in this country 60,000 gallons only were imported for the ten months up to the end of January last and according to the latest returns the quantity is decreasing as compared with last year.

Tuberculosis in Cattle.

Mr. WARNER asked the First Lord of the Treasury if he proposed to introduce any Bill for appointing Government inspectors to inspect and condemn cattle afflicted with tuberculosis, as uniform action all over the country was most desirable on this subject and as one private Bill had been introduced by a corporation to give its own inspectors these powers outside the municipal boundaries.—Mr. WALTER LONG, President of the Board of Agriculture, answered the question, saying: It is not the intention of the Government to appoint inspectors for the purpose suggested by the hon. gentleman, and as far as the legislation to which he referred is concerned, by which, I presume, he means private Bill legislation, of course those Bills come before the committees upstairs, and it is impossible to say what powers Parliament would grant to local authorities.

MONDAY, FEB. 20TH.

Lead Poisoning in the Potteries.

Mr. HOLLAND asked the Home Secretary whether his attention had been called to the death of Jane Heath, a potters' colour mixer, from epilepsy, on Jan. 2nd last at Burslem, and to the fact that no inquest was held into the cause of her death; and whether he would suggest to the coroner for the district to order an inquest in every case of death where lead poisoning was suspected.—Sir MATTHEW WHITE RIDLEY replied that he had made inquiry into this case and found that the death was duly reported to the coroner who, after consultation with the medical practitioner who had attended the deceased, accepted his opinion that death was not attributable to lead poisoning.

Vaccination Certificates.

Mr. BARTLEY asked the President of the Local Government Board whether anyone could be revaccinated by the public vaccinator free of charge, and whether a certificate of revaccination could be obtained free or at a small fee by anyone who wished for it after revaccination.—Mr. CHAPLIN replied: Any person who is not less than 10 years of age and has not been previously revaccinated within a period of 10 years may be revaccinated by the public vaccinator free of charge. In such a case it is the duty of the public vaccinator, if so required, to deliver to the person revaccinated a certificate of the result of the operation.

The Royal Army Medical Corps.

Sir WALTER FOSTER asked the Under-Secretary of State for War whether, in view of the fact that the strength of the Royal Army Medical Corps detailed for duty during the late autumn manœuvres—viz., 23 officers and 215 men—was quite inadequate for an army of nearly 48,000 of all ranks and in view of Lord Wolseley's comment thereon that the medical staff requires augmentation, he could state from what source a sufficient number of medical officers, as laid down in mobilisation tables, is to be drawn for the two army corps declared by the Commander-in-Chief to be always ready for embarkation for field service abroad.—Mr. WYNDHAM replied: The strength of the Royal Army Medical Corps employed at the manœuvres was 68 officers and 312 men and not 23 officers and 215 men as stated in the question. The 224 officers required for two army corps can be provided from existing home establishments. There would be no justification for withdrawing 224 medical officers from their normal duties for manœuvres. In time of war this would be done and the vacancies supplied with civilian practitioners.

Accommodation for Convalescent Soldiers.

Mr. WYNDHAM replying to a question by Captain NORTON said that the Secretary of State for War has decided that accommodation for convalescent soldiers shall be provided in existing barracks at 10 selected stations. There would be room for about 3500 convalescents in all.

Hospital Arrangements in Egypt.

Captain NORTON asked the Under Secretary of State for War whether he could state if, upon receipt of the unofficial application for a hospital ship by the general officer commanding the army of occupation in Egypt on June 27th, 1898, any steps were taken to fit out a ship and to hold it in readiness to proceed to Egypt in anticipation of the expected renewed application; what steps, if any, were taken to supplement the existing hospital accommodation and nursing staff at Cairo and Alexandria with a view to the proper care of the sick and wounded while awaiting embarkation; and whether he could state the average number of patients in hospital at Cairo and Alexandria between Sept. 20th and Oct. 30th, 1898, as well as the average number of trained nurses in attendance on them during that period, also the average time that each patient remained at Alexandria or Cairo awaiting embarkation and the number of deaths that took place amongst the patients.—Mr. WYNDHAM said: No steps were taken to fit out a hospital ship on the receipt of the unofficial communication. The hospital accommodation at Cairo and Alexandria was supplemented by tents pitched close to the hospitals. At Cairo, where the accommodation is greatly in excess of normal peace requirements, the tents were used for a few days only. The average number of patients in hospital during September was: At Cairo, 354; at Alexandria, 113. During October: Cairo, 347; Alexandria, 268. Information has been asked for from Egypt as to the average time during which each patient awaited embarkation. This cannot be ascertained from the returns at the War Office. The deaths between Sept. 20th and Oct. 30th were: At Cairo, 67; at Alexandria, 37. The nursing staff at Cairo and Alexandria was supplemented by the addition of 138 non-commissioned officers and men of the Royal Army Medical Corps.

BOOKS, ETC., RECEIVED.

BLACK, A. AND C., Soho-square, London.

The Englishwoman's Year Book and Directory. 1899. Edited by Emily Janes. 19th year. Price 2*s.* 6*d.* net.

CARL GEROLD'S SOHN, Wien.

Uber die Beulenpest in Bombay im Jahre 1897. Theil II. B. Mit 14 Tafeln. 1898.

CARRÉ, G., ET C. NAUD, Paris.

La Maladie de Carrion ou la Verruga Péruvienne. Par E. Odriozola. 1898.

La Photothérapie. Par N. R. Finsen. 1899.

CASSELL AND COMPANY, London.

The Year-Book of Treatment for 1899. Illustrated.

CHAPMAN AND HALL, Henrietta-street, Covent-garden, London.

Medical Works of the XIVth Century. By Rev. Professor G. Henslow, M.A., F.L.S. 1899. Price 21*s.*

CHURCHILL, J. & A., Great Marlborough-street, London.

A Manual of Diseases of the Nervous System. By Sir W. R. Gowers, M.D., F.R.C.P., F.R.S. Third edition. Edited by Sir W. R. Gowers and Jas. Taylor, M.A., M.D., F.R.C.P. Vol. i. 1899. Price 15*s.*

CLIVE, W. B., Booksellers-row, Strand, London.

University Correspondence College: the University Tutorial Series. Matriculation Directory, No. 25. January, 1899. With articles on the Special Subjects for June, 1899, and January, 1900. Price 1*s.* net.

DAVIS, F. A., COMPY. PUBLISHERS, Philadelphia.

Annual and Analytical Cyclopædia of Practical Medicine. By C. E. de M. Sajous, M.D., and others. Illustrated. Vol. II. 1899.

FISCHER, GUSTAV, Jena.

Handbuch der Toxikologie. Von Professor A. J. Kunkel. Erste Hälfte. 1899.

GEORGE NEWNES, LTD., Southampton-street, Strand, London.

The Story of the Mind. By J. M. Baldwin. Illustrated. 1899. Price 1*s.*

JENKINS, WM. R., New York.

Text-book of Anatomy, Physiology, and Hygiene. By E. Franklin Smith, M.D.

KIMPTON, H., High Holborn, London.

Manual of the Diseases of Children. By J. M. Taylor, A.M., M.D., and Wm. H. Wells, M.D. Illustrated. 1899.

Text-book of Medical and Pharmaceutical Chemistry. By E. H. Bartley, B.S., M.D., Ph.G. Fifth Edition. Illustrated. 1899.

KNIGHT AND CO., La Belle Sauvage-yard, Ludgate-hill, London.
Fry's Law of Vaccination. By A. F. Vulliamy. Seventh Edition. 1899.

LIPPINCOTT, J. B., COMPANY, London and Philadelphia.
Lippincott's Pocket Medical Dictionary. Edited by R. W. Greene, A.B. Price 5s. net.

LONGMANS, GREEN AND CO., London.
Elementary Physiology. By B. Moore, M.A. Illustrated. 1899. Price 3s. 6d.
The Annual Charities Register and Digest, 1899. With an Introduction by C. S. Loch, Secretary to the Council of the Charity Organisation Society, London. Price 4s.

MACMILLAN AND CO., London.
General Physiology: An Outline of the Science of Life. By M. Verworn, M.D., Ph.D. Translated and edited by F. S. Lee, Ph.D. Illustrated. 1899. Price 15s. net.
Birds. By A. H. Evans, M.A. Camb. 1899. Price 17s. net.

MALOINE, A., Paris.
Cours de Minéralogie Biologique. Par J. Gaube (du Gers). Deuxième Série. 1899.

MASSON ET CIE, Paris.
Des Péricardites. Par C. Giraudeau.

MEDICAL PUBLISHING COMPANY, Bartholomew-close, London.
On Villous Growths and the Common Affections of the Rectum. By Thos. Bryant, M.Ch. (Hon.), F.R.C.S. Eng. and Irel. (Hon). Illustrated. 1899. Price 3s. 6d.

MENDOTA BOOK COMPANY, Madison, Wis.
Testing Milk and its Products. By E. H. Farrington and F. W. Woll. Fourth Edition. Illustrated. 1899.

NEW SYDENHAM SOCIETY, London.
An Atlas of Illustrations of Pathology, compiled for the New Sydenham Society. Fasciculus xii. Hodgkins' Disease. With plates. 1898.

OHIO VALLEY COMPY., Cincinnati.
King's American Dispensatory. By H. W. Felter, M.D., and J. U. Lloyd, Phr.M., Ph.D. Eighteenth edition. In two vols. Vol. I. 1898.

OLIVER AND BOYD, Tweeddale-court, Edinburgh.
Notes on Surgery for Nurses. By Joseph Bell, M.D., F.R.C.S. Edin. Fifth Edition. 1899. Price 2s. 6d.

PENTLAND, Y. J., Edinburgh and London.
The Edinburgh Medical Journal. Edited by G. A. Gibson, M.D., F.R.C.P. Edin. New series. Vol. iv. 1898.

PULMAN, G., AND SONS, London.
The Work of the Life Assurance Examiner. Part I., Examination and Report. By Sir Wm. R. Gowers, M.D., F.R.C.P., F.R.S. 1899. Price 2s. 6d.

ROUTLEDGE, G., AND SONS, Broadway, Ludgate-hill, London.
The Microscope: Its History, Construction, and Application. By Jabez Hogg, M.R.C.S., F.R.M.S. Illustrated. Fifteenth edition. 1898. Price 10s. 6d.

SCIENTIFIC PRESS, Southampton-street, Strand, London.
The London Water-supply: A Retrospect and a Survey. By R. Sisley, M.D. and Doctor of State Medicine, M.R.C.P. Lond. 1899. Price 21s.
The Nursing Profession: How and Where to Train. Edited by Sir H. Burdett. Price 2s. net.

SELL, HENRY, Fleet-street, London.
Sell's Directory of Registered Telegraphic Addresses for 1899; from Official Lists supplied by authority of the Postmaster-General. By Henry Sell. Prices, subscribers 15s., non-subscribers 21s.
Sell's Dictionary of the World's Press for 1899. Vol. i., Newspaper Section. Vol. ii., Commercial Section. Prices 4s. each.

SMITH, ELDER AND CO., Waterloo-place, London.
A Junior Course of Practical Zoology. By the late A. M. Marshall, M.D., D.Sc., M.A., F.R.S., and the late C. H. Hurst, Ph.D. Fifth edition, revised by F. W. Gamble, M.Sc. 1899.
Saint Bartholomew's Hospital Reports. Edited by N. Moore, M.D., and D'Arcy Power, F.R.C.S. Vol. xxxiv. 1899. Price 6s.

UNION STEAMSHIP COMPANY, Bishopsgate-street-within, London, E.C.
South Africa as a Health Resort: with Especial Reference to the Effects of the Climate on Consumptive Invalids. By Arthur Fuller, M.B. Edin., M.R.C.S. Sixth Edition. 1898. Price 1s.

UNWIN, T. F., Paternoster-buildings, London.
Harry Ingleby, Surgeon. By Fred J. Webb. 1898. Price 6s.

WHITAKER, J. AND SONS, Warwick-lane, London, E.C.
Whitaker's Naval and Military Directory and Indian Army List. 1899. Price 5s.

WRIGHT AND CO., Bristol.
The Thermal Waters of Bath. By G. A. Bannatyne, M.D., M.R.C.P. 1899. Price 2s.

Dod's Parliamentary Companion for 1899 (Whittaker and Co., White Hart-street, Paternoster-square, London). Price 4s. 6d.—Banks and their Customers; by the author of "The Banks and the Public." 1889 (E. Wilson, Royal Exchange, London, E.C.). Price 1s.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward it to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, for publication in the next number.*

ABBOTT, F. C., M.B., F.R.C.S. Eng., B.Sc. Lond., has been appointed Assistant Surgeon to St. Thomas's Hospital, London.

ANGELL, Mr., has been re-appointed Public Analyst by the Guildford Town Council.

BLATHERWICK, H., L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer to the Dulwich Sanitary District, Parish of St. Giles, Camberwell.

BRENNAND, F. J., M.B., C.M. Aberd., has been appointed Medical Officer to the Fourth Sanitary District of the Shepton Mallet Union.

BRISCOE, W. T., M.D., M.Ch. Dubl., has been re-appointed Medical Officer to the District of Pewsham, Chippenham Union.

BYASS, E. S., M.B., C.M., L.R.C.S. Edin., has been re-appointed Medical Officer to Slaugham, the Cuckfield Union.

CAMERON, A. F., M.B., C.M. Edin., has been appointed Senior Assistant Medical Officer by the Sheffield Board of Guardians.

CORFIELD, HENRY O., M.D. Edin., has been appointed Medical Officer and Public Vaccinator to the No. 2 Sanitary District of the Bedminster Union.

CLERY, J. A., Col., M.B., M.Ch. Dubl., has been appointed Principal Medical Officer to the Thames and Woolwich Districts.

DAVIES, W. T., L.R.C.P. Lond., M.R.C.S., has been re-appointed Medical Officer to the Third Sanitary District of the Hertford Union.

DE BEAUVAIS, R.N., L.S.A., has been appointed Medical Officer to the Milton Abbot Sanitary District of the Tavistock Union.

DICKEY, A. A. G., M.D. Irel., L.R.C.S., L.M.R.C.P. Irel., has been appointed Medical Officer to the Colne Sanitary District of the Burnley Union.

DUKE, A. W., Col., M.D. Irel., L.R.C.S. Irel., has been appointed Principal Medical Officer to the North-Western District at Chester.

DUNN, J. P., M.B., C.M. Glasg., has been appointed Medical Officer to the Bishopton Sanitary District of the Sedgefield Union.

FLINT, F. S., L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., has been appointed Medical Officer to the Orford Sanitary District of the Plomesgate Union.

FRYER, R. A., M.B., C.M. Edin., has been appointed Medical Officer to the Hoxton New Town Sanitary District, Parish of St. Leonard, Shoreditch.

GABBETT, H. S., M.D. Dubl., M.R.C.P. Lond., has been appointed Pathologist to the Princess Alice Hospital, Eastbourne.

GRAHAM, JAMES, M.B., C.M. Ed., has been appointed Medical Officer to the Workhouse of the Cockermouth Union.

GRAHAM, J. W. F., L.S.A., has been appointed Medical Officer to the Brill Sanitary District of the Thame Union.

HANLY, JOHN JOSEPH, M.A. (R.U.I.), L.R.C.P., L.R.C.S., L.M. Edin., has been appointed Medical Officer and Public Vaccinator to the No. 2 Sanitary District of the Shepton Mallet Union, vice L. Powell resigned.

HILLMAN, G. B., L.S.A., has been appointed Medical Officer of Health by the Castleford Urban District Council.

JACOB, F. H., M.B. Lond., M.R.C.S., L.R.C.P., has been appointed House Physician to the Nottingham General Hospital, vice J. C. Buckley, resigned.

KEMPE, GILBERT, M.D., B.S. Dunelm, M.R.C.S., L.R.C.P. Lond., has been appointed Honorary Surgeon to the Salisbury Infirmary.

KENNARD, D. G., L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer to the Workhouse and the Faringdon Sanitary District of Faringdon Union.

LONFORD, J. M., L.R.C.P., L.R.C.S. Irel., has been appointed Medical Officer to the Litcham Sanitary District of the Mitford and Launditch Union.

MANN, F. W. S., L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer to the Revesby Sanitary District of the Horncastle Union.

MURRAY, R. W., L.R.C.P. Lond., F.R.C.S., has been appointed an Honorary Surgeon to the Northern Hospital, Liverpool, vice A. H. Wilson.

NORMAN, FREDERICK, M.D. Brux., D.P.H., L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer to the Eighth District of the Lambeth Union, vice Percy Fox.

PRIOR, E. T., M.R.C.S., has been re-appointed Medical Officer of Health by the Loddon and Clavering Rural District Council.

RAWLINGS, J. D., M.B. Lond., L.R.C.P., M.R.C.S., has been appointed Medical Officer to the Northern Sanitary District of the Dorking Union.

ROBINSON, JAMES, M.D. Brux., L.R.C.P. Edin., M.R.C.S., has been re-appointed Medical Officer of Health by the Turton Urban District Council.

ROCHE, ANTONY, M.R.C.P. Irel., has been re-appointed Examiner in Medical Jurisprudence and Public Health to the Royal University of Ireland.

TAYLOR, JAMES, M.A., M.D., F.R.C.P., has been appointed Physician to the Royal London Ophthalmic Hospital, Moorfields.

TURNER, R. T., M.D. Vict., Ch.B., has been appointed Medical Officer to the Wybunbury Sanitary District of the Nantwich Union.

Vacancies.

For further Information regarding each vacancy reference should be made to the advertisement (see Index).

BIRMINGHAM AND MIDLAND HOSPITAL FOR SKIN AND URINARY DISEASES, Birmingham.—Clinical Assistant.

BIRMINGHAM TAME AND REA DISTRICT DRAINAGE BOARD.—Analytical Chemist. Commencing salary £135 per annum, rising to £165 per annum. Applications to Mr. J. Knight, Offices of the Drainage Board, Council House, Birmingham.

BOOTLE BOROUGH HOSPITAL, Liverpool.—Junior House Surgeon. Salary £50 per annum, with board, lodging, &c.

BOROUGH OF ROYAL LEAMINGTON SPA.—Manager of Baths. Salary £4 per week, without residence. Applications to the Town Clerk, Town Hall, Leamington.

COTTAGE HOSPITAL, North Ormesby, Middlesbro'.—House Surgeon, in-door, unmarried. Salary £8 per month.

CUMBERLAND AND WESTMORELAND ASYLUM, Garlands, Carlisle.—Junior Assistant Medical Officer, unmarried. Salary £80 a year, with board and residence.

EAST LONDON HOSPITAL FOR CHILDREN AND DISPENSARY FOR WOMEN, Glamis-road, Shadwell, E.—House Surgeon. Board, residence, &c., provided and an honorarium of £25 granted conditionally.

FARRINGDON GENERAL DISPENSARY, 17, Bartlett's-buildings, Holborn-circus, London.—Resident Medical Officer. Salary £100 per annum, with apartments and attendance.

GREAT NORTHERN CENTRAL HOSPITAL, Holloway-road, London.—Junior House Surgeon for six months. Salary at the rate of £30 per annum, with board, lodging, and washing in the hospital. Also Surgeon to Inpatients. Also Assistant Anæsthetist for six months. Honorarium at the rate of 10 guineas per annum.

HALIFAX UNION WORKHOUSE—ST. LUKE'S HOSPITAL.—Assistant Medical Officer, unmarried. Salary, £160 per annum, subject to statutory deductions. Applications to the Clerk to the Guardians, Union Offices, Halifax.

HEREFORD GENERAL INFIRMARY.—Senior House Surgeon, unmarried. Salary £90 per annum, with furnished rooms, board, washing, gas, coals, and attendance.

HUDDERSFIELD INFIRMARY.—Assistant House Surgeon for six months. Salary at the rate of £60 per annum, with board, lodging, and washing.

KING'S COLLEGE, London.—The Sambrook Surgical Registrarship. Applications from King's College students only. Also Assistant Ophthalmic Surgeon.

LIVERPOOL NORTHERN HOSPITAL.—Assistant House Surgeon. Salary £70 per annum, with residence and maintenance in the house.

LONDON TEMPERANCE HOSPITAL, Hampstead-road, N.W.—Assistant Medical Officer for six months. Residence in the hospital, board, and washing provided, and an honorarium of 5 guineas given conditionally.

LONDON HOSPITAL, Whitechapel, E.—Surgical Registrar. Salary £100 per annum.

MANCHESTER CHILDREN'S HOSPITAL.—Junior Resident Medical Officer for six months, unmarried. Salary at the rate of £80 a year, with board and lodging. Applications to the Secretary, Dispensary, Gartside-street, Manchester.

MANCHESTER EAR HOSPITAL, 23, Byrom-street.—Clinical Clerkship for a Senior Student for six months. Honorarium 10 guineas.

MANCHESTER ROYAL INFIRMARY AND DISPENSARY.—Honorary Aural Surgeon and Honorary Assistant Surgeon.

MANCHESTER ROYAL INFIRMARY.—Junior Administrator of Anæsthetics (non-resident) for twelve months at least. Salary £50 per annum.

METROPOLITAN HOSPITAL, Kingsland-road, N.E.—House Physician, House Surgeon, Assistant House Physician, and Assistant House Surgeon, for six months. Salaries for House Physician and House Surgeon at the rate of £40 a year, and for the Assistant House Physician and Assistant House Surgeon at the rate of £20 a year.

MILLER HOSPITAL AND ROYAL KENT DISPENSARY, Greenwich-road, S.E.—Junior Resident Medical Officer for six months. Salary £40 per annum, with board, attendance, and washing.

NORFOLK AND NORWICH HOSPITAL, Norwich.—House Surgeon for two years, unmarried. Salary £80 per annum, with board, lodging, and washing.

NORTHERN HOSPITAL, Liverpool.—Ambulance Surgeon. Board, residence, and washing provided.

PRESTON ROYAL INFIRMARY.—A Junior and an Assistant House Surgeon. Salaries £30 and £50 per annum respectively with board, lodging, washing, &c.

ROXBURGH DISTRICT ASYLUM, Melrose.—Assistant Medical Officer. Salary £100 per annum, with furnished quarters, board, washing, and attendance.

ROYAL BERKS HOSPITAL, Reading.—Assistant House Surgeon for six months. Salary £30, with board, lodging, and washing.

ROYAL HALIFAX INFIRMARY.—Assistant House Surgeon, unmarried. Salary £50 per annum, with an extra allowance of £9 2s. 6d. per annum; also residence, board, and lodging.

ROYAL HOSPITAL FOR SICK CHILDREN, GLASGOW DISPENSARY.—Two extra Honorary Physicians.

ROYAL LONDON OPHTHALMIC HOSPITAL, Moorfields, E.C.—Junior Out-patient Surgical Officer. Salary £50.

ROYAL PORTSMOUTH, PORTSEA, AND GOSPORT HOSPITAL, Portsmouth.—Assistant House Surgeon for six months. Board and residence provided, and an honorarium of £15 15s. given.

ST. GEORGE, HANOVER-SQUARE, PROVIDENT DISPENSARY, Little Grosvenor-street, London, W.—Resident Medical Officer. Salary £100, with allowance about £30, and residence at the dispensary.

SOUTH DEVON AND EAST CORNWALL HOSPITAL, Plymouth.—Hous Surgeon. Salary £100, with board and residence. Also Assistant House Surgeon for six months. Salary at the rate of £50 per annum, with board and residence.

UNIVERSITY OF EDINBURGH.—Lectureship on Diseases of Tropic Climates for three years.

VICTORIA HOSPITAL FOR CONSUMPTON, Edinburgh.—Resident Physician for six months. Residence and board provided, in addition to a nominal honorarium at the rate of £20 per annum. Also Non-resident Medical Officer for Out-patients for six months. Salary at the rate of £60 per annum.

WEST BROMWICH DISTRICT HOSPITAL.—Resident Assistant House Surgeon for six months. Board, lodging, and washing provided. Gratuity £20.

WEST KENT GENERAL HOSPRTAL, Maidstone.—Assistant Hous Surgeon for six months. Honorarium £12 10s., with board and residence.

WESTON-SUPER-MARE HOSPITAL.—House Surgeon, unmarried, Salar £60 per annum, with board and residence in the hospital.

Births, Marriages, and Deaths.

BIRTHS.

ADAMS.—On Feb. 15th, the wife of E. Weaver Adams, F.R.C.S., of Slough, of a son.

BARKER.—On Feb. 21st, at the Old Brewery House, Watford, the wif of J. C. Barker, M.R.C.S., L.R.C.P., of a son.

BATTERHAM.—On Feb. 15th, at Grand-parade, St. Leonards-on-Sea, the wife of J. W. Batterham, M.B., F.R.C.S., of a son.

CAMPBELL.—On Feb. 18th, at Eldon Royd, Bradford, the wife of H. J. Campbell, M.D., F.R.C.P., of a daughter.

THOMAS.—On Feb. 18th, at Greenlawn, Pen-y-lan, Cardiff, the wife Mr. J. Lynn Thomas, F.R.C.S., of a daughter.

THOMSON.—On Feb. 14th, at Bridge House, Retford, the wife of George Thomson, M.B., C.M. Edin., of a son.

MARRIAGES.

AUSTEN—SLEIGH.—On Feb. 14th, at St. Peter's, Brighton, Surgeon Thomas Austen, R.N., of H.M.'s Dockyard, Sheerness, to Ethel Dorothea Sleigh, third daughter of John Sleigh, J.P., late of Eversley, near Matlock, Derbyshire.

BOWES—LEE.—On Feb. 9th, at Christ Church, Herne Bay, T. A. Bowes, M.D., son of John Bowes, M.R.C.S., of Herne Bay, to Gertrude, youngest daughter of George Lee, Herne Bay.

SADLER—HOLLAND.—On Feb. 7th, at the Parish Church, Ashbourne, Ernest A. Sadler, M.D., The Mansion, Ashbourne, to Elizabeth, second daughter of William Richard Holland, St. John's House, Ashbourne.

SHINE—FITZGERALD.—On Feb. 14th, at Holy Trinity Church, Brook Green, Kensington, by the Rev. F. Grant, C.C., assisted by Rev. John Hill, P.P., Barnsley, John Power Shine, M.B., B.Ch. R.U.I., to Gretta Apjohn, fourth daughter of John Connell Fitzgerald, Esq., Abington House, Murroe, co. Limerick, Ireland.

TYSON—DU BOULAY.—On Feb. 14th, at St. Paul's, Sandgate, William Joseph Tyson, M.D., of Folkestone, to Lola Houssemayne, youngest daughter of Julius Houssemayne du Boulay, Esq., J.P., of West Lawn, Sandgate.

WINGFIELD—COLE.—On Feb. 14th, at St. John's Church, Boscombe, Hants, Hugh E. Wingfield, M.D. Cantab., of Winchester, to Catharine Jane, youngest daughter of Major-General G. Wynne Cole, H.M. Indian Army.

DEATHS.

ROE.—On Feb. 16th, in London, Edward Roe, M.A. Cantab., L.R.C.P. London, M.R.C.S., of Lyndhurst, Hampshire, aged 53.

TERRY.—Feb. 16th, at his residence, 35, Grosvenor, Bath, John Terry, M.R.C.S. Eng., and L.S.A., in the 77th year of his age. For many years proprietor of Ballbrook House Asylum.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (27th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M., Ophthalmic 1.15 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), St. Mark's (9.30 A.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), Westminster (2 P.M.), London Throat (2 P.M.).

TUESDAY (28th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), Guy's (1.30 P.M.), St. Thomas's (3.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M. and 6 P.M.), Royal Ear (3 P.M.).

WEDNESDAY (1st).—St. Bartholomew's (1.30 P.M.), University College, (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M.), Cancer (2 P.M.).

THURSDAY (2nd).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M.).

FRIDAY (3rd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M., Ophthalmic 10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (2 P.M. and 6 P.M.).

SATURDAY (4th).—Royal Free (9 A.M. and 2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), University College (9.15 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), London Throat (2 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

MONDAY (27th).—MEDICAL SOCIETY OF LONDON.—8.30 P.M. Dr. S Martin: Auto-intoxication and its bearing on the Treatment of Disease.

TUESDAY (28th).—ROYAL MEDICAL AND CHIRURGICAL SOCIETY (20 Hanover-square, W.).—8.30 P.M. Paper:—Mr. W. J. Walsham: A Case of Extirpation of a Large Non-pulsating Aneurysm, Involving the Common, Internal, and External Carotid Arteries of the Right Side of the Neck, with remarks on Non-pulsation in Aneurysms and the Treatment of Aneurysms by Extirpation.

WEDNESDAY (1st).—OBSTETRICAL SOCIETY OF LONDON.—8 P.M. Specimens will be shown by Mr. Bland Sutton, Mr. Targett, and others. Mr. A. Doran (President): Inaugural Address. Paper:—Dr. C. H. Roberts: A second Case of Primary Carcinoma of the Fallopian Tube.

SOCIETY OF ARTS.—8 P.M. Mr. W. P. Rix: Leadless Glazes.

THURSDAY (2nd).—HARVEIAN SOCIETY OF LONDON (Stafford Rooms, Titchborne-street, Edgware-road).—8.30 P.M. Mr. D'Arcy Power: On Vanishing Tumours.—Mr. B. Gardner: A New Ether Inhaler.

NEUROLOGICAL SOCIETY OF LONDON (11, Chandos-street, W.).—8.30 P.M. Clinical Evening. Dr. F. E. Batten: Muscular Atrophy in a Child.—Dr. T. D. Savill: Epileptiform Seizures of probable Vaso-motor Origin.—Dr. H. A. Caley: Syringomyelia with Sudden Increase of Symptoms.—Dr. W. Harris: Hæmorrhage into the Spinal Cord (? Syringomyelia).—Dr. J. H. Bryant: Paralysis Agitans following Typhoid Fever in a Man aged 31 years.—Dr. Stansfield: Epileptic Insanity associated with Mastoid Disease, Operation, Relief of Mental Symptoms. And other cases.

BRITISH BALNEOLOGICAL AND CLIMATOLOGICAL SOCIETY (20, Hanover square, W.).—3.30 P.M. Papers:—Dr. D. Kerr (Bath): Treatment of Disease by Heat.—Dr. Hedley: The Therapeutics of Heat.

FRIDAY (3rd).—WEST KENT MEDICO-CHIRURGICAL SOCIETY (Royal Kent Dispensary, Greenwich-road, S.E.).—8.45 P.M. Clinical Cases:—Dr. McCann and Dr. Ezard: Notes with specimens of (1) a Case of Dermoid Cyst of Ovary, simulating Extra-uterine Pregnancy; (2) a Case of Parovarian Cyst of Unusual Size.—Mr. Ernest Clark: Eye Cases (Living and Pathological).—Dr. Toogood: Cases from Lewisham Infirmary.—Dr. Scholefield: Clinical Cases.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY (West London Hospital, Hammersmith, W.).—8.15 P.M. Clinical Evening. Cases will be shown by Dr. S. Taylor, Mr. R. Pollock, Mr. McA. Eccles, and others.

LARYNGOLOGICAL SOCIETY OF LONDON (20, Hanover-square, W.).—5 P.M. Cases will be shown by the President, Dr. De H. Hall, Mr. Bowlby, Dr. E. Law, Dr. StClair Thomson, and others.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (27th).—ROYAL COLLEGE OF SURGEONS OF ENGLAND.—5 P.M. Mr. B. G. A. Moynihan: The Anatomy and Surgery of the Peritoneal Fossæ. (Arris and Gale Lecture.)

THE ROYAL INSTITUTE OF PUBLIC HEALTH (Rooms of the Royal Medical and Chirurgical Society, 20, Hanover-square, W.).—8.30 P.M. Prof. J. McFadyean: Tuberculosis in Cattle.

WEST LONDON POST-GRADUATE COURSE (West London Hospital, W.).—5 P.M. Mr. McAdam Eccles: The Application of Trusses and of Abdominal Supports.

TUESDAY (28th).—ROYAL COLLEGE OF PHYSICIANS OF LONDON.—5 P.M. Dr. G. V. Poore: The Earth in Relation to the Preservation and Destruction of Contagia. (Milroy Lecture.)

WEST-END HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM (73, Welbeck-street, W.).—4 P.M. Dr. D. Grant: Cases of Aural and other forms of Vertigo.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Bloomsbury).—3.30 P.M. Mr. Gunn: The Value of the Visual Fields in Diagnosis.

WEDNESDAY (1st).—ROYAL COLLEGE OF SURGEONS OF ENGLAND.—5 P.M. Mr. B. G. A. Moynihan: The Anatomy and Surgery of the Peritoneal Fossæ. (Arris and Gale Lecture.)

EVELINA HOSPITAL (Southwark-bridge-road, S.E.).—4.30 P.M. Mr. F. C. Abbott: Clinical Demonstration on the Complications of Ear Disease. (Post-Graduate Course).

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST (Brompton).—4 P.M. Dr. H. Mackenzie: Medicinal Treatment of Pulmonary Tuberculosis.

THURSDAY (2nd).—ROYAL COLLEGE OF PHYSICIANS OF LONDON.—5 P.M. Dr. G. V. Poore: The Earth in Relation to the Preservation and Destruction of Contagia. (Milroy Lecture.)

CHARING-CROSS HOSPITAL.—4 P.M. Dr. M. Murray: Demonstration of Medical Cases. (Post-Graduate Class.)

ROYAL LONDON OPHTHALMIC HOSPITAL (Moorfields).—8 P.M. Mr. Tweedy: Diseases of the Conjunctiva, with Special Reference to their General Pathology and Classification.

LONDON TEMPERANCE HOSPITAL.—2 P.M. Dr. S. Fenwick: Clinical and Pathological Demonstration to Senior Students.

THE HOSPITAL FOR SICK CHILDREN (Gt. Ormond-street, W.C.—4 P.M. Dr. Garrod: Demonstration of Selected Cases.

WEST LONDON POST-GRADUATE COURSE (West London Hospital, W.).—5 P.M. Mr. McAdam Eccles: The Application of Trusses and of Abdominal Supports.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN (Leicester-square, W.C.).—4.30 P.M. Dr. M. Dockrell: Cases of Telangiectasis and Vascular New Growths.

FRIDAY (3rd).—ROYAL COLLEGE OF SURGEONS OF ENGLAND.—5 P.M. Mr. B. G. A. Moynihan: The Anatomy and Surgery of the Peritoneal Fossæ. (Arris and Gale Lecture.)

Notes, Short Comments, and Answers to Correspondents.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this Office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers, not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index to Vol. II. of 1898, which was completed with the issue of Dec. 31st, and the Title-page to the Volume, were given in THE LANCET of Jan. 7th.

VOLUMES AND CASES.

VOLUMES for the second half of the year 1898 are now ready. Bound in cloth, gilt lettered, price 18*s.*, carriage extra.

Cases for binding the half-year's numbers are also ready. Cloth, gilt lettered, price 2*s.*, by post 2*s.* 6*d.*

To be obtained on application to the Manager, accompanied by remittance.

WHAT IS ADVERTISEMENT?

"WHAT is advertisement?" asks a correspondent who draws our attention to an article which recently appeared in the *Echo*, headed "The Cancer Curse. III. Can Cancer be Cured? An Interview with Dr. Herbert Snow." Having read the article we cannot congratulate Dr. Herbert Snow upon the appearance which he makes in the columns of our lay contemporary. To us it seems that he has been advertised as a cancer-curer with his full name and two addresses (which if not full are sufficient for business purposes) that he has not made any proper effort to avoid this unfortunate publicity, and that he has managed also to convey an impression to the interviewer (which impression is duly recorded in the *Echo*) that the general practitioner's methods of dealing with cancer result in the loss of lives which could have been saved.

The article commences by stating that "the real question pressing for answer is whether any of the cases of skin and lip cancer (epithelioma) or of breast cancer (carcinoma) or of fleshy tumour (sarcoma) can be cured without danger of a return. To obtain a reliable answer to this the writer called on Herbert Snow, M.D. (surgeon of the Cancer Hospital, Brompton), at his house in Gloucester-place, W., and put the question to him." We think that all our readers will agree that Dr. Snow's proper course would have been to decline the honour of such an interview. The attitude of the *Echo* towards our profession and towards quacks is well known so that no medical man need have felt in the least discourteous at refusing to assist an interviewer from that paper to construct articles of a medical flavour. Again, Dr. Snow ought to have been prompt to see that the character of a cancer curer was being thrust upon him. However excellent in tone the paper might be the representative of which desired such information from him the outcome of the interview would be sure to represent him as the man to whom a sort of final appeal might fitly be made on an all-important question in therapeutics. Yet Dr. Snow must have known that the question was not in the least important in the sense that there could be any doubt about the answer. His first words to the interviewer: "Certainly, the success turns upon some conditions which could be easily fulfilled," show that he knew well that he was being asked something the answer to which every medical man in the kingdom knew. Why then prolong the interview with the quoting of cases and the giving of significant shrugs to the shoulder?

The following paragraph purports to be a reflection of the interviewer as he leaves Dr. Snow's presence:—

> "Here the busy man bowed me out, but as I came away it was very evident that if in one year, 1897, the Cancer Hospital discharged cured and relieved 730 cases out of 832 presenting themselves and only had a 9 per cent. death-rate, there must be something wrong with the ordinary system resulting in such fearful cancer mortality. It is no marvel so many die when the valuable few months are frittered away in the hands of general practitioners."

Surely, this last is a most unfortunate moral for a layman to be able to draw from an interview with a medical man. Here we have nearly the whole medical profession of the country gravely accused of ignorance or neglect resulting in fearful mortality simply because Dr. Snow has unfortunately managed to convey the impression that only certain consultant surgeons know how to treat cancer. We repeat that we consider that Dr. Snow makes a poor appearance in the columns of the *Echo*, while we feel that he ought not to appear there at all.

WANTED A HOME FOR AN EPILEPTIC PATIENT.

To the Editors of THE LANCET.

SIRS,—I have received a letter from a patient asking information as to whether there is an institution for epileptics in this country for poor patients who would, under proper supervision, be able to work in some way for their maintenance. "I have," he writes, "a young man of 22 years of age in this parish who has suffered for years from epilepsy, and he now finds it impossible to obtain employment on the land owing to this infirmity. His father is an agricultural labourer with a large family. If there is an institution such as I have mentioned he would be a very deserving and suitable candidate for admission." I know the case and it is a deserving one. Could any of your readers give me the desired information?

I am, Sirs, yours faithfully,

Caistor, Lincs., Feb. 5th, 1899. C. M. LEAKEY, L.S.A.

THE PURIFICATION OF RAW WHISKY.

AN interesting process for the purification of raw whisky has recently been brought to the notice of our laboratory staff. The process possesses distinct merits, not the least important feature of which is that at no stage is the spirit treated chemically. Indeed, the process is of the simplest possible kind and is based upon well-known principles underlying the law of the diffusion of liquids. In short the spirit is simply allowed to remain in contact with water for some days without mixing with it. This is done by placing the spirit in a closed capacious vessel terminating in a neck provided with a somewhat wide stopcock. The vessel is filled with crude whisky and the mouth is just allowed to dip under water. The stopcock is then turned on and the whisky is left in contact with the water for some weeks. The simplest way of conducting the experiment is to place a bottle full of whisky in a dish of water so that the neck just projects under the surface. A remarkable change takes place. The water beneath becomes very turbid and very offensive, while the spirit in the upper vessel gets remarkably brilliant without losing any sensible amount of colouring. We have carefully examined both samples of the spirit before it is treated in this way, and the product which has thus been modified by the process of diffusion. Further, we have examined also the offensive washings which are obtained. We have found that a reduction takes place in the amount of crude and physiologically bad oils in raw spirit to the extent of 20 per cent. with an exposure of 30 days. The purification would increase, there is reason to think, with longer treatment. We have observed the process on a somewhat large experimental scale and we have repeated the same thing on a small scale in the laboratory with precisely similar results. The flavour of the whisky is distinctly improved, it becomes mild to the palate, and quite free from that earthiness which characterises recently distilled grain spirit. By saponifying with potash about half a pint of the raw whisky and subsequently acidifying the remaining liquid after boiling off the alcohol, a very acrid oil is obtained on distilling the saponified fluid with sulphuric acid. This oil has a very powerful effect upon the tongue, paralysing the sensory nerves and possessing a nasty rancid pungent taste. The same substance was obtained from the aqueous washings used in purifying the spirit by the process described after standing 30 days. The process reduces the amount of extractive matters in the whisky as well as the acidity while, odd as it may appear, there is no sensible reduction in the amount of spirit. Thus in two experiments the following results were obtained: the spirit before treatment showed alcohol, 54·95 per cent. by weight; 62·79 per cent. by volume; equal to proof spirit 110·03 per cent. After 30 days' treatment the following was the alcoholic strength; by weight, 54·71 per cent.; by volume, 62·55 per cent.; equal to proof spirit, 109·62 per cent. The second specimen of raw spirit used gave the following figures: alcohol by weight, 54·95 per cent.; by volume, 62·79 per cent.; equal to proof spirit, 110·03 per cent. After contact with water in the manner described the following were the figures obtained: alcohol by weight, 53·57 per cent.; by volume, 61·40 per cent.; equal to proof spirit, 107·61 per cent. The process is one of considerable interest and importance as being applicable to rendering spirituous fluids free from harmful bodies. We have found that with claret, for example, a large proportion of the tartaric acid diffuses out, while in the case of sherry containing sulphate of potassium due to the treatment of the grapes with sulphate of lime the former salt diffuses out thus effecting a very important reduction in the quantity of this salt in the wine. The sugar in a similar way diffuses out. The process appears to be applicable for many purposes where it is required to purify without deterioration or loss of the prime material. The process is fully patented and the patentee is Mr. John Thomas Bennett, of Cape Town, whose agents in London are Messrs. Birchall, Solicitors, 85, Gracechurch-street, E.C.

WANTED AN INEBRIATES' HOME.

To the Editors of THE LANCET.

SIRS,—Can any of your readers tell me of an Inebriate Home suitable for a clerk whose wages are about £2 a week? The list in Churchill's Directory, 1898, is very scanty. The patient has never been before a magistrate.

I am, Sirs, yours faithfully,

Feb. 21st, 1899. AQUA.

"A USEFUL HANDKERCHIEF."

REFERRING to our note on this subject in our last issue Messrs. Arthur and Co. of Berners-street write to say that they were the introducers of "The Antiseptic Handkerchief." Messrs. Arthur and Co. enclose specimens of handkerchiefs similar to those described last week and for the same purpose.

INDUCTION OF PREMATURE LABOUR.

IN the December number of the *Archivio Italiano di Ginecologia*, a journal published every two months in Naples, Dr. P. G. Spinelli, professor of clinical gynæcology in the University, describes a simple method of inducing premature labour which he devised some years ago. No special instrument is employed, the only requisites being an ordinary irrigator with a glass vaginal cannula, a vaginal speculum, a pair of toothed forceps, a pair of forceps six and a half inches long, a metal dilator, one and three-quarters yards of aseptic gauze saturated with glycerine and ichthyol (10 per cent.), and two and a quarter yards of dry aseptic gauze. The day before the operation the woman has a bath and a purgative, followed by an enema next morning. A little before the operation a catheter is passed, the pubic hair is removed, and the mons veneris, external genitals, vagina, and cervical canal are rendered aseptic. The hands of the operator and those of his assistant, as well as the instruments, are also sterilised. The first step is to seize the posterior lip of the cervix with the toothed forceps and to draw the uterus down. If the woman is a primapara the cervix may require to be dilated, for which purpose Professor Spinelli has used Simpson's three-valved dilator, but any other dilator would do as well, or a pair of forceps may be passed into the os and subsequently opened. In multiparæ the cervix usually does not require dilatation. The fore-finger being then introduced into the cervix above the internal os with the palmar aspect towards the uterine wall the membranes are gently detached without perforation

as far as the finger can reach; the gauze containing the glycerine and ichthyol is then passed in with the help of the forceps and guided by the fore-finger is gently packed between the uterus and the detached membranes, taking care not to rupture the latter. This packing evidently causes further detachment of the membranes, for Professor Spinelli has in this way succeeded in introducing more than a yard of gauze. The vagina is then packed with a yard or two of sterilised gauze and kept in position by means of an external bandage, after which the woman may remain in bed or lie on a couch, or may even walk about. Uterine contractions soon take place and the fœtus is generally born in about 10 hours, the uterine and vaginal packing being expelled half an hour or an hour previously. Professor Spinelli gives details of eight cases in which he has used the method since 1893, two of them in successive pregnancies of the same woman. Until recent years, he says, premature labour was most frequently induced on account of pelvic contraction, but he prefers to perform symphysiotomy in these cases and resorts to premature labour in uncontrollable vomiting, profound anæmia, albuminuria, uncompensated heart disease, dropsy of the amnion, in hæmorrhage from detachment of the placenta, and in cases where there has been premature death of the fœtus in previous pregnancies. In eclampsia he considers that, as a general rule, there is no need to terminate pregnancy either by premature labour or by immediate delivery.

"SOUTH AMERICAN MUMMY HEADS."

To the Editors of THE LANCET.

SIRS,—While in Parà last June I saw several specimens of South American mummy heads. They were in a shop called the "Fortunato Oro" in one of the principal streets and the price the owner asked for a specimen was a contos of reis, equivalent to £30 sterling.

I am, Sirs, yours faithfully,

General Dispensary, Nottingham, Feb. 21st, 1899. B. B. BURKE.

AN IMPROPER ADVERTISEMENT.

To the Editors of THE LANCET.

SIRS,—The enclosed cutting was taken out of *Lloyd's Weekly Newspaper* for Feb. 5th. I see that Mr. Robinson's name is in the Directory for the current year.

I am, Sirs, yours faithfully,

Beb, 21st, 1899. M.D.

[INCLOSURE.]

"I B I S."

TOOTHACHE AND NEURALGIA CURE.

RELIEF SOON AS APPLIED.

[Here is inserted a picture of a molar tooth with an ibis upon it.—Ed. L.]

Full Directions Enclosed.

In Bottles, 1s. 1½d., of all Chemists, or post-free from Manufacturer.

Mr. A. B. ROBINSON, L.D.S.R.C.S. ENG.,

Surgeon-Dentist.

29, Seymour Street, Liverpool.

FREE TRIAL SAMPLE Sent Post Free.

*** The advertisement is one to which the attention of the Royal College of Surgeons of England or even that of the General Medical Council may well be called.—ED. L.

MALE AND FEMALE BIRTHS IN SINGAPORE.

IN the course of last year Professor Schenk, of Vienna, published a treatise on the system to be followed by couples desirous of having male offspring. A resident in Singapore who has been studying its pages wrote not long ago to the *Singapore Free Press* pointing out that there is little, if any need for Professor Schenk's methods in that Settlement, because an analysis of the local births recorded in the *Free Press* during 1898 shows a startling predominance of male births. "The proportions work out to the quite astounding relative figures of 68·42 per cent. of boys and 31·58 per cent. of girls per 100 births in local European and Eurasian families in or about Singapore during 1898. In other words, the chances of a baby proving a boy are perceptibly more than two to one. Whether 1898 was a peculiar year, or whether there were exceptional occult climatic, dietetic, or biological reasons for this unexpected preponderance of male births cannot yet be determined."

SHORTENING OF THE RIGHT HUMERUS IN EPILEPTICS.

AT a meeting of the New York Academy of Medicine on Dec. 8th, 1898, Dr. L. Pierce Clark of the Craig Colony for Epileptics, Sonyea, New York, said that Ferrier had only recently recognised shortening of the extremities as a stigma of epilepsy and that the only recorded case of shortening of the humerus in this disease had been published by two French observers. Dr. Clark then described two cases, an account of which may be found in *Pediatrics* of Feb. 1st. One was a girl, 19 years of age; she had had epilepsy since she was three or four years of age, at which time she had several severe convulsions, followed by left-sided and complete hemiplegia lasting for three or four months. The second attack occurred about two months after the first one. At present the convulsive movement was confined to the left side of the face and the unconsciousness lasted but a few seconds. She had had in 24 hours as many as 15 of these seizures of the *petit mal* type. The grasp of the dynamometer was 42 with the right and 38 with the left hand. The right humerus was nine inches and the left 12¼ inches long; the ulna measured nine inches on both sides. The second patient was a girl 20 years old, who was admitted in 1896 with epilepsy of over 18 years' duration. The seizures were of the *petit mal* type and occurred at intervals of about six days. The grasp of the dynamometer was 45 with the right and 43 with the left hand. The length of the right humerus was seven and a half inches and that of the left 12 inches. The length of the hand was the same on both sides.

"EUTHANASIA."

To the Editors of THE LANCET.

SIRS,—In reference to the inquiry of "Euthanasia" in THE LANCET of Feb. 18th not only do I consider that he would have been justified in giving morphia hypodermically in the case he mentions, but, other methods having failed to relieve pain, I think he was bound to do so. My rule in such cases is simply to give morphia till the desired effect (relief from pain) is produced, and to do this I have frequently had to administer several grains per diem. The dose must generally be given twice daily and at progressively earlier hours. By this method I believe much suffering may be spared, life prolonged, and even some happiness procured for the poor doomed mortal. I have always felt that to the miserable stricken cancer victim opium is, indeed, "a gift of the gods," and that without it medical practice would be an altogether too terrible experience.

I am, Sirs, yours faithfully,

Feb. 19th, 1899. W. GILCHRIST BURNIE.

X. Y. Z.—The treatment to be pursued can only be determined satisfactorily by an ophthalmic surgeon and we recommend our correspondent to apply to one for an opinion. Many points would have to be considered. For example, something depends upon the time that has elapsed since the injury was received; if recent the lens will probably soon become opaque throughout and then an iridectomy would prove useless; on the other hand, if the lesion be of old date and the opacity has long remained stationary it may not advance and an iridectomy might prove serviceable. Something however would depend upon the presence of adhesions between the iris and the capsule of the lens and upon the liability to recurrent iritis. If there be no adhesions and there have been no recurrent attacks of iritis whilst vision is tolerably good, the advantage to be derived from iridectomy is doubtful. Benefit might be derived for a time by the instillation of a very weak solution of atropine—say a solution of one-eighth of a grain of atropine sulphate in one ounce of water every other day. If this materially improved vision an operation for iridectomy would be justifiable and proper. Speaking generally, an eye damaged in the way described by our correspondent is seriously and permanently impaired and is not materially improved by any operation.

Principal C. has omitted to enclose his name and address.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Feb. 23rd, 1899.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rain-fall.	Solar Radia in Vacuo.	Maximum Temp. Shade.	Min. Temp	Wet Bulb.	Dry Bulb.	Remarks at 8.30 a.m.
Feb. 17	30·02	S.E.	...	82	57	41	41	42	Hazy
,, 18	30·05	E.	...	61	51	40	41	42	Foggy
,, 19	30·10	S.W.	...	56	51	41	45	45	Cloudy
,, 20	30·18	S.E.	0·01	53	48	45	45	46	Overcast
,, 21	30·29	E.	...	79	49	41	41	43	Cloudy
,, 22	30·35	S.E.	...	78	50	37	37	40	Fine
,, 23	30·26	S.E.	...	65	50	36	36	38	Hazy

During the week marked copies of the following newspapers have been received: *Leinster Express, Norfolk Standard, Alloa Journal, Colchester Mercury, Bradford Observer, Stockport Chronicle, Huddersfield Examiner, Public Opinion, Newcastle Daily Leader, Dover Express, Darlington Echo, The Morning, Kendal News, Brighton Gazette, Scotsman, Architect, Citizen, Times of India, Pioneer Mail, Builder, Liverpool Daily Post, Birmingham Daily Gazette, Kent Herald, Bristol Mercury, Bideford Weekly Gazette, Yorkshire Post, Bolton Evening News, Leeds Mercury, Dunstable Borough Gazette, Clifton Chronicle, Scarborough Post, Oswestry Advertiser, Sanitary Record, Hertfordshire Mercury, Mining Journal, Local Government Chronicle, City Press, Reading Mercury, Lincoln Gazette, Kalgoorlie Miner, Surrey Advertiser, The People, Local Government Journal, Shrewsbury Chronicle, Kentish Express, News, Monmouth Beacon, Hove Echo, Carnarvon Herald, Lancashire Daily Post, Swindon Advertiser, Normanton Herald, Faversham News, South Shields Free Press, Isle of Wight Express, Manx Sun, Ilfracombe Gazette, Torquay Times, Herts Reporter, Dundee Advertiser, Flintshire Observer, Wilton Times, Wiltshire Times, Thetford and Watton Times, Echo, Evening Times (Glasgow), &c., &c.*

Communications, Letters, &c., have been received from—

A.—Dr. Atthill, Dublin; Messrs. Armour and Co., Lond.; Messrs. Allen and Hanburys, Lond.; Apollinaris Co., Lond.; A. S. M.; *Australian Journal of Dentistry*, Melbourne, Secretary of; Messrs. Aitken and Co., York; *Archives Provinciales de Médecine*, Paris, Editor of; A. W. B.; Mr. C. Ady, Lond.; Messrs. Arnold and Sons, Lond.; A. J.

B.—Mr. H. Barham, Maidstone; Mr. C. Birchall, Liverpool; Birmingham Hospital for Skin Diseases, Hon. Secretary of; *Bath Herald*, Proprietor of; Mr. J. Barr, Bolton; Messrs. Blake, Sandford, and Blake, Lond.; Messrs. Bates, Hendy, and Co., Reading; Birmingham Tame and Rea District Drainage Board, Engineer of; Messrs. Burgoyne, Burbidges, and Co., Lond.; Dr. T. Beattie, Newcastle-on-Tyne; Mr. W. Bassett, Newport; Messrs. Burroughs, Wellcome, and Co., Lond.; Mr. A. A. Bowlby, Lond.; Mr. E. Burney-Young, Lond.; Messrs. C. Barker and Sons, Lond.

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D.—Dr. Dingan, Oxford; Mr. H. Drewry, Nottingham; Messrs. Dowie and Marshall, Lond.; Mr. H. G. Dixon, Hoxton; Mr. J. Dawkins, Leamington; Dr. F. Deas, Lond.

E.—Mr. F. Eve, Lond.

F.—Mr. H. R. Faulkner, Lond.; Mr. M. Farrant, jun., Exeter.

G.—Mr. D. Gamble, Ashton-in-Makerfield; Messrs. Grimwade, Ridley, and Co., Lond.; G. W., Chatham.

H.—Dr. E. Harrison, Hull; Mr. C. Higgens, Lond.; Dr. A. B. Harris, Falmouth; Hovis Bread Flour Co., Macclesfield.

J.—Mr. Raymond Johnson, Lond.; J. R. B.; J. H. D.

K.—Dr. P. J. Kolsky, Simpheropol; Mr. C. King, Lond.; Mr. A. F. Stanley Kent, Lond.; Mr. R. Kemp, Lond.

L.—Mr. W. L. Liston, Tewkesbury; Dr. P. W. Latham, Cambridge; Dr. A. P. Luff, Lond.; Mrs. Lemon, Lond.; L. B. W.; Mr. F. W. Lowndes, Liverpool; London Temperance Hospital, Secretary of; Messrs. J. Law and Co., Glasgow; Messrs. Longmans and Co., Lond.

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N.—Messrs. Niblett and Sutherland, Lond.; National Press Cutting Bureau, Lond.; Northern Hospital, Secretary of; National Hospital for Consumption, Ventnor, Secretary of; Dr. David Newman, Glasgow.

O.—Mr. J. Offord, Lond.

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R.—Mr. E. J. Reid, Lond.; Rebman Publishing Co., Lond.; Royal Portsmouth Hospital, Secretary of; Royal Victoria Homes, Bristol, Warden of; Mr. J. Robinson, Kidderminster; Mr. J. W. Rogers-Tillstone, East Malling; Royal College of Surgeons, Dublin, Registrar of; Mr. H. B. Robinson, Lond.; Dr. J. W. Russell, Birmingham; Roxburgh District Asylum, Melrose, Secretary of; Mr. W. Reeve, Lond.

S.—Dr. F. W. Saunders, Lond.; Signor G. Schunnach, Rome; South Devon Hospital, Plymouth, Hon. Secretary of; Mr. Holmes Spicer, Lond.; Miss E. Sellers, Sudbury; Surgical Aid Society, Lond., Secretary of; Mr. R. C. Saunders, Lond.; Society of Apothecaries, Lond., Secretary of; *Singapore Free Press*, Editor of; Messrs. Smith, Elder, and Co., Lond.

T.—Tower House Retreat, Westgate-on-Sea; Dr. H. M. Tickell, Cheltenham; T. T.

V.—Mr. J. W. Vickers, Lond.; Dr. M. A. Veeder, Lyons, N.Y.

W.—Mr. A. L. Whitehead, Leeds W. Middlesbrough; Mr. Edgar Willett, Lond.; Messrs. M. Whitwell, Son, and Judge, Lond.; West Kent General Hospital, Maidstone, Secretary of; Dr. James Wallace, Greenock; Mr. G. H. Wade, Chislehurst; Messrs. Wilcox and Co., Lond.; Mr. T. Woods, Gillingham; Dr. Wrangham, Leicester.

Y.—Yöst Typewriter Co., Lond.

Letters, each with enclosure, are also acknowledged from—

A.—Dr. J. Althaus, Lond.; Dr. C. M. Allan, Longton; A. M.; Mr. F. C. Allen, Ashton-under-Lyne; Anderson's College Medical School, Glasgow, Secretary of; Dr. F. J. Allen, Birmingham; Mr. J. E. Anderton, New Mills; Mr. G. Awford, Gloucester; A. W. H. L.; A. W. S.

B.—Mr. M. L. Bensusan, Lond.; Birmingham City Asylum, Clerk of; Birkenhead Children's Hospital, Hon. Treasurer of; Belfast District Asylum, Clerk of; Mr. C. S. Bowker, Pontnewydd; Dr. A. Bronner, Bradford; Bootle Borough Hospital, Clerk of; Dr. W. T. Bell, Hayes; Mr. F. Bauermeister, Glasgow; Baxter, Liverpool; Mr. J. C. Barker, Watford; Mrs. E. S. Browett, Coventry.

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F.—Dr. Fulton, Eston; Messrs. Fletcher, Fletcher, and Co., Lond.; Miss F., Southborough.

G.—Messrs. R. W. Greeff and Co., Lond.; Great Yarmouth Hospital, Secretary of; G. M. S.; General Apothecaries' Co., Lond.; General Medical Council, Lond.; G. de V. B.

H.—Mr. W. Hardiker, Priors Marston; Mrs. Harvey, Lond.; Mr. S. V. Holgate, Nottingham; Herts County Asylum, St. Albans, Secretary of; Haydock Lodge, Newton-le-Willows; Superintendent of; Hemel Hempstead Sanatorium, Medical Superintendent of; Mr. J. Heywood, Manchester; H. B.; H. C.; H. M., Cambridge; H. F. B.

J.—Mr. J. Jackson, Denholme; Jenner Society, Gloucester, Hon. Secretary of; J. H. A.; J. J. M.; J. McC. M.; J. F. M.; J. H. B.; J. McG.; J. J. F.

K.—Dr. W. Knott, Middlesbrough; Messrs. Keith and Co., Edinburgh.

L.—Mr. G. H. Longton, Barford; Mr. C. Lucas, Burwell; London Throat Hospital, Secretary of; London College of Pharmacy; Dr. P. Letters, Valencia Island.

M.—Mr. R. P. Merry, Hemel Hempstead; Mr. W. A. Mushé, Lond.; Medicus, Winfrith; Mr. J. McLintock, Slamannan; M.D., Grantham; Medicus, Wrexham; Medico, Bath; M. H. P.; Dr. J. McNaught, Waterfoot; Mr. D. McIntyre, Dundee; Messrs. Murley Bros., Lond.

O.—Omega.

P.—Dr. E. J. Pritchard, Hinckley; Messrs. Preston Bros. and Co., Huddersfield; Mr. W. Pinckney, Salisbury; Preston Royal Infirmary, Secretary of.

R.—Messrs. J. Robbins and Co., Lond.; R. W. M.; Dr. W. P. Richardson, Newcastle-on-Tyne; Royal Lancaster Infirmary, Secretary of.

S.—Dr. H. A. Smith, Ealing; Dr. S.; Smedley's Hydropathic Co., Matlock, Manager of; Messrs. W. H. Smith and Son, Manchester; Messrs. Squire and Sons, Lond.; S. R.; S. G. M.; S. V. H.; Mr. J. Smith, Liverpool; Messrs. A. F. Sharp and Co., Glasgow; S. G. W.; Dr. J. A. Shaw-Mackenzie, Lond.; Scarborough Hospital, Secretary of; Mr. L. Stone, Newcastle, Ireland; Mr. J. Stein, Dublin.

T.—Dr. W. J. Tilley, Warwick; T. K. W., Queensland; T. K. C.; Mr. C. Terry, Bath; The Thorne, Hayes; Mr. J. L. Thomas, Cardiff; Tasmanian Eucalyptus Oil Co., Lond.; Dr. A. Thorn, Skipton.

V.—Victoria Hospital for Sick Children, Lond.; V. F. A.

W.—Mr. P. Williams, Dunster; Dr. R. B. Wild, Manchester; W. R.; W. A. W.; W. S.; West Bromwich District Hospital, Secretary of; W. C. D.; Dr. J. T. Wilson, Hamilton; Dr. Forbes Winslow.

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